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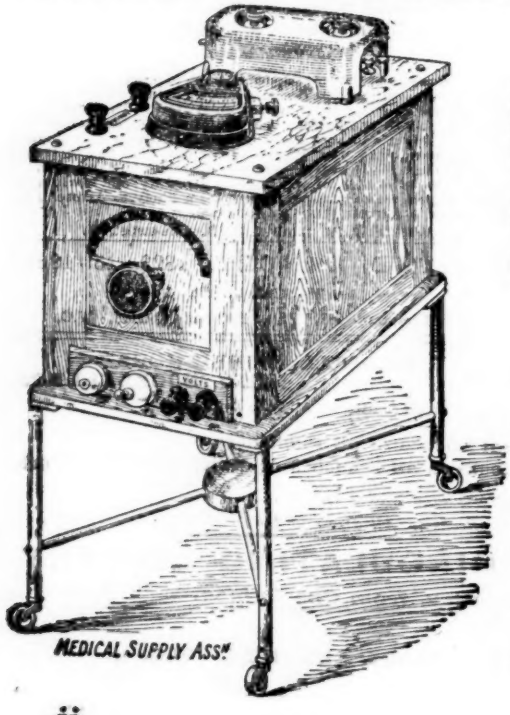

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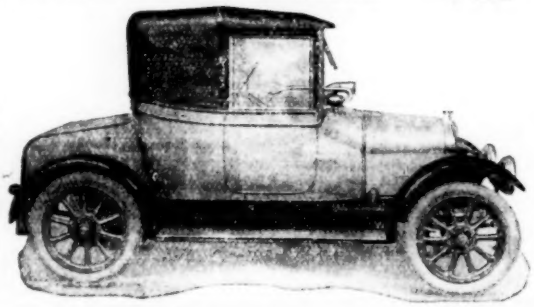

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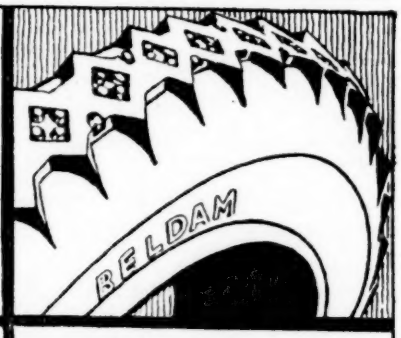

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Report
ON
THE ESSENTIAL CHARACTERISTICS OF SUCCESSFUL AND UNSUCCESSFUL AVIATORS.

WITH SPECIAL REFERENCE TO TEMPERAMENT.

BY T. S. RIPPON, M.R.C.S., L.R.C.P. LOND.,
CAPTAIN, R.A.M.C.; ATTACHED R.A.F.;
AND
E. G. MANUEL,
LIEUTENANT, R.A.F.

INTRODUCTION.

THE authors of this paper are respectively a pilot of 600 hours' experience and a medical officer stationed at an aerodrome. Their observations led them to the conclusion that the mark of the successful aviator was the possession of a suitable temperament, and in the following columns will be found a description of this faculty as shown in the cases they personally studied. In the second part of the paper will be found certain information obtained from experienced pilots, together with a few brief statistics, which are intended to show that the opinions of the authors are shared by pilots and confirmed by actual flying tests.

THE TEMPERAMENT OF THE SUCCESSFUL AVIATOR.

The enormous number of pilots who have qualified recently is a proof that the aviator is not a "super-man." It is true that we see certain men who perform marvellous "stunts," but when we come to talk to them and examine them with regard to physique and mentality we find that they are quite ordinary people.

Flying is not now confined to the public school boy, the cavalry officer, or the athlete. We take many of our pilots at present from the lower middle classes and some from the artisan class. The most useful method of discovering whether or not the candidate or pupil is likely to become successful is to study the life-history of the pilots whom we know to be efficient. This demonstrates the fact that there are many characteristics common to the successful pilot which are absent from the pupil who has been withdrawn from instruction in flying on account of lack of aptitude.

Sport.—The successful aviator has always the attributes of a sportsman. As a schoolboy he takes part in all forms of athletics and usually played for the school in one game at least. After leaving school he still keeps it up, and probably goes in for other kinds of sport—hunting, shooting, fishing, rowing, golfing, motoring, &c. He joins the Air Force because he is keen on flying, as it appeals to his sporting proclivities.

Character.—He possesses resolution, initiative, presence of mind, sense of humour, judgment; is alert, cheerful, optimistic, happy-go-lucky, generally a good fellow, and frequently lacking in imagination.

Age.—The majority of successful pilots are under 25 years of age, the explanation obviously being that the resiliency of youth enables them to accustom themselves more rapidly to a new occupation and to recover quickly from the strain and stress they are called upon to undergo.

High-spirited.—Anyone who has lived with pilots for any length of time cannot fail to notice that they possess in a very high degree a fund of animal spirits and excessive vitality.

Amusements.—When they have finished flying for the day their favourite amusements are theatres, music (chiefly ragtime), cards, and dancing, and it appears necessary for the well-being of the average pilot that he should indulge in a really riotous evening at least once or twice a month.

Alcohol.—Alcohol is taken freely by the older men, but the young, fit pilot serving at home hardly ever touches it. It is not necessary to legislate on the subject of alcohol for pilots; they are well aware of the danger of taking too much before flying. The desire for alcohol comes with "nerves," staleness and stress of service, but the fit pilot needs no stimulant. In so far that on active service it enables a man to sleep after an exciting day and promotes good-fellowship in the mess, its effect may be said to be beneficial, but for the young cadet and the fit pilot on home stations it is entirely unnecessary.

Marriage.—The majority of successful pilots are unmarried, and our own observations tend to show that marriage is a definite handicap owing to the increased sense of responsibility. If a man marries after he has flown several hundred hours, and flying has become automatic, marriage may not apparently affect him for some time. In some cases it may even make him steadier and more careful, but sooner or later it will in most cases have a definitely deteriorating effect.

Although this objection could be advanced for any branch of the service, yet a careful consideration will show that there are special reasons why marriage is an exceptional disadvantage to the pupil under instruction. The training of officers for the infantry, for example, is practically unaccompanied by danger, and it is only when drafted overseas that they may be said to begin to know fear. By this time, however, they have learned all their duties, and the discipline acquired will help them to face their possibilities. The pupil under instruction in flying, on the other hand, whilst learning to fly in conjunction with his other training, faces great dangers, in some ways almost as great as he will ever be called upon to undergo. Being generally in England, he has not the feeling that he is in the actual zone of hostilities, and the risks he takes are, as one might say, undergone in cold blood.

The unmarried man (faced with the possibility of crashing whilst doing his first solo) in most cases dismisses the thought or takes the risk in the same way as a horse-rider puts his mount at a fence in strange country. The married man has the knowledge of what death may mean to his wife and family, and, moreover, has the opportunity in many cases of discussing it with his wife and manufacturing in his own home a condition of nervousness which eventually becomes so great that he confesses to his instructor that he has completely lost his nerve.

Occupation.—We found that the best type of pilot was seldom drawn from a sedentary occupation, that those who had lived a sheltered life were not so good as those who had roughed it, and we discovered the interesting fact that most of those pilots who before they joined were in business or doing clerical work possessed considerable sporting aptitude, and as soon as they had finished work would hurry to the cricket or football field.

Hands.—One of the most important characteristics we have noticed in successful aviators is "hands." This characteristic is difficult to define, but may be described as follows. The horse-rider with good hands is able to sense the mentality of a horse by the feel of the reins and also to convey his desires accurately to his mount. We have never known of a man who has consistently been in the first flight in the hunting field making anything but a good pilot.

In the same way the pilot with good hands senses unconsciously the various movements of the aeroplane, and rectifies any unusual or abnormal evolutions almost before they occur. The skilful pilot appears to anticipate "bumps." He is invariably a graceful flyer, never unconsciously throws an undue strain on the machine, just as a good riding man will never make a horse's mouth bleed.

"Hands" appear to be congenital and cannot be acquired, although they may be improved and *vice versa*. Motor-car and motor-cycle racing, owing to the powerful grip that must be maintained to keep the machine on the track, tend to spoil "hands" even if this faculty was previously in existence. We have produced a mechanical contrivance for the purpose of demonstrating the difference between light and heavy-handed pilots with which we are at present experimenting and which we hope will prove of practical value.

The fighting scout.—The fighting scout is usually the enthusiastic youngster, keen on flying, full of what one might call the "joy of life," possessing an average intelligence, but knowing little or nothing of the details of his machine or engine; he has little or no imagination, no sense of responsibility, keen sense of humour, able to think and act quickly, and endowed to a high degree with the afore-mentioned quality, "hands." He very seldom takes his work seriously, but looks upon "Hun-strafing" as a great game.

Mechanical knowledge.—The question whether this type should possess a knowledge of mechanism, and of the whys and wherefores of flying is a very debatable point. The authors, however, desire to express their definite conviction that the less the fighting scout pilot knows about his machine from a mechanical point of view the better. From the very nature of his work he must be prepared to throw the machine about, and at times subject it to such strains that did he realise how near he was to the breaking-point, his nerve would go very quickly. It has not been possible as yet to obtain a sufficient body of evidence in support of this statement, owing to the unwillingness of pilots to confess their ignorance of engines, for reasons of *amour-propre*. Some of the most experienced and prominent pilots of the present day, however, uphold our conviction.

Examples of Successful Pilots.

The following are examples of flying officers who have demonstrated their ability to fly and also to fight.

1. Lieut. D. Educated at Stonyhurst. Joined the R.F.C. after leaving school at age of 17. Played football, cricket, racquets, fives, and golf—obtained his first eleven colours at school. Rode, hunted, and drove a motor. Was self-confident, self-reliant, quiet, had a keen sense of humour, was able to make a speech in public, and did not mind being alone. Courage and bravery with him was a "cult." After a distinguished career in France, and being decorated with the D.S.O., he was wounded and became a test pilot. He was subsequently killed in an accident.

2. Capt. O. He was brought up on a farm and learned farming from a practical standpoint. He came of a stock of sporting farmers and was accustomed to hunt and shoot regularly as a boy. At the early age of 17 he took over the entire management of one of his father's farms which had previously been unsuccessful, and conducted it in such an able manner that it showed a profit at the end of the year. When war broke out he joined the infantry, where he obtained the Military Cross; he subsequently joined the R.F.C., and after obtaining a bar to his M.C. he had a serious accident, which has up to the present prevented him from resuming flying.

3. Lieut. L. This officer was brought up on a farm in South Africa. He was the descendant of the original Dutch emigrants to this colony. He was a skilful big game hunter and had the primitive instincts of hunting and fighting in a marked degree. At regular intervals he would disappear from his father's farm and wander by himself for months in the forest, subsequently returning and resuming his occupation. After a strenuous time with the infantry and unfit for further service on account of wounds, he became a pilot, and eventually was killed in France.

TABLE I.—*Answers to Questionaire.*

Series 1.

Serial number.	Age.	No. of hours flying.	Whether on active service.	Types of machines flown.	Married or single.	Occupation in civil life.	Is alcohol necessary?	Do you ride a horse?	Hunt?	Motor?	Favourite amusement.	Is marriage a handicap.
1	21	250	Yes.	Bleriot; Bristol; Avro; Sopwith, &c.	S.	Schoolboy.	No.	Yes	Yes	Yes	Cards.	Slightly
2	31	1600	No.	All types.	M.	—	,,	,,	,,	,,	Women.	Yes
3	26	500	Yes	Scouts.	S.	Farmer.	Yes	,,	,,	,,	Sports.	,,
4	28	250	,,	Curtis; Avro; R.E.8; B.E.2 C.; E.L.	S.	Army.	No	,,	,,	,,	Motoring.	,,
5	25	70	,,	M.F.S.H.; F.E.8; B.E.	M.	Mechan. engineer.	,,	No	No	,,	,,	,,
6	35	4000*	,,	Farman; Bleriot; Dep. &c.; all sorts.	M.	Engineer.	,,	,,	,,	,,	Natural history.	No
7	24	350	,,	F.E.; D.H.4, 6,	S.	Manufacturer.	Yes (mod.)	,,	,,	,,	Theatres.	Yes
8	27	150	No	B.E.; R.E.; D.H.4, 6, 9.	S.	Barrister.	,,	Yes	,,	,,	,,	,,
9	20	568	,,	D.H.4, 5, 6, 9; Pups. Martyde, &c.	M.	Nil.	,,	,,	,,	,,	Shooting.	Doubtful
10	27	800	Yes	Scouts.	M.	Motoring (hobby).	Doubtful	,,	Yes	,,	Betting.	Yes
11	30	450	,,	H.F.; Vickers; D.H.2, 5.	S.	Naval architect.	No	No	No	,,	Theatres.	,,
12	18	175	No	Camel; D.H.4, 6, 9; S.E.5, &c.	S.	Schoolboy.	Yes (to some)	Yes	,,	,,	Dancing.	,,
13	20	200	Yes	34 types.	S.	,,	No	No	,,	,,	Motoring.	,,
14	21	600	,,	30 types.	S.	Student.	,,	Yes	,,	,,	—	No
15	26	1700	,,	B.E.; D.H.4, 5, 6, 9; S.P.A.D., &c.	S.	Land agent.	Yes (mod.)	No	,,	,,	Theatres.	Yes
16	22	160	,,	B.E.; Camels; S.E.5; Scouts.	S.	—	No	Yes	—	—	—	,,
17	30	70	No	D.H.4; R.E.8; B.E., &c.	S.	Mechanic.	,,	,,	Yes	Yes	Theatres, skating.	No
18	24	365	Yes	Everything.	M.	Motor mechanic.	No or mod.	No	No	,,	Billiards.	,,
19	26	350	,,	D.H.4, 6, 9; Handley Page, &c.	S.	Engineer.	No	Yes	,,	,,	Whisky.	Yes
20	33	3000*	,,	All types.	S.	,, —	,,	,,	,,	,,	Motoring.	Slight
21	23	400	No	B.E.; A.W.; R.E.; B. Fighter.	S.	—	,,	,,	,,	,,	Flying.	—
22	25	300	,,	D.H.4-9; F.E.; B. Handley Page.	S.	Various.	,,	,,	Yes	,,	—	Yes
23	24	215	,,	21 types.	S.	Draughtsman.	,,	,,	No	,,	Music.	Doubtful
24	26	1000	Yes	All types.	—	—	,,	,,	Yes	,,	Sports and women.	No
25	23	370	No	All sorts.	S.	None.	,,	,,	,,	,,	Open air.	Yes
26	30	130	Yes	B.E.; R.E.; F.E.; A.W.; D.H.4.	S.	Teaching.	,,	No	No	No	Theatres.	No
27	19	75	,,	Camel; S.E.5; D.H.4-5; A.W.	S.	Schoolboy.	,,	Yes	,,	Yes	—	,,
28	18	150	,,	B. Fighter; D.H.4; S.E.5; R.E.S.	S.	Student.	,,	No	Yes	,,	Theatres.	Yes
29	19	70	,,	Pups; Camel's, &c.	S.	—	,,	—	—	,,	Billiards.	No
30	23	200	,,	Rotary's and Stationary's.	S.	Horse breeding.	,,	Yes	No	,,	Flying.	Yes
31	—	—	—	—	M.	Farmer.	,,	,,	,,	,,	—	No
32	20	120	Yes	Camel's; D.H.4 &c.	S.	—	,,	,,	Yes	,,	—	,,
33	19	290	,,	All types.	S.	Draughtsman.	,,	,,	,,	,,	—	Doubtful
34	25	400	,,	Mostly two-seaters.	S.	Civil Service.	,,	,,	,,	,,	Theatres.	—
35	21	1000	,,	44 types.	S.	Schoolboy.	,,	No	No	,,	Flying.	Yes
36	20	200	No	14 ,,	S.	School.	Yes (mod.)	,,	,,	,,	,,	,,
37	27	4000	,,	D.H.1-10; Flying Boats, &c.	M.	Pilot.	No	Yes	Yes	,,	Shooting.	,,
38	21	350	,,	22 types.	S.	School.	,,	,,	,,	,,	Killing Huns	,,
39	22	400	Yes	S.E.5; D.H.5 (Scouts).	S.	Student.	,,	,,	,,	,,	and dancing.	,,
40	25	2000	,,	All types.	S.	Nil.	,,	,,	No	,,	Billiards.	,,
41	22	1000	,,	,,	S.	Mechan. engineer.	,,	,,	,,	,,	—	,,
42	22	350	,,	,,	S.	—	,,	,,	Yes	,,	—	No
43	21	350	,,	Scouts.	M.	Nil.	Yes	,,	,,	,,	Skating.	Yes
44	19½	150	,,	D.H. 4-6-9; A.W.; R.E.; B.E., &c.	S.	School.	No	,,	No	,,	?	,,
45	24	150	No	Several types.	S.	Accountant.	,,	No	,,	,,	Sports (any kind).	Doubtful
46	24	500	,,	All stationary engines.	S.	Prospector.	Doubtful	,,	,,	No	Dancing.	Yes

Series 2.

1	27	600	Yes	B.E.; R.E.; A.W.; D.H.; Handley Page.	M.	Dyer.	Yes	Yes	Yes	Yes	Racing.	No
2	19	25	,,	Curtis; Avro; B.E.; Pup; Camel, &c.	S.	Motor engineer.	No	,,	,,	,,	Shooting.	Yes
3	23	95	No	D.H.5; S.E.5; Camel; Pup.	S.	,,	Doubtful	,,	—	,,	,, —	No
4	22	490	Yes	F.E.; Camel; S.E.5, &c.	S.	Electrical engineer.	,,	,,	No	,,		Yes
5	19	300	,,	Pup; Triplane; Camel; D.H.9.	S.	Engineer.	No	,,	Yes	,,	Sports.	No
6	26	800	,,	26 types.	S.	,,	,,	,,	,,	,,	Women and sports.	Yes
7	25	165	,,	Pup; S.P.A.D.; S.E.5; Camel; Dolphin.	S.	Manager.	,,	No	No	,,	Athletics.	No
8	19	364	,,	A.W.; M.F.	S.	Camb. undergrad.	,,	Yes	,,	,,	Motor cycling.	Yes
9	26	150	,,	M.F.; B.E.; R.E.; D.H.4; D.H.9.	S.	Accountant.	,,	,,	,,	No	Reading.	?
10	27	275	,,	B.E.; A.W.; Camel; Avro.	S.	Engineer.	Yes	,,	,,	Yes	Theatres.	Yes
11	20	120	,,	M.F.; B.E.; D.H.6; Bristol fighter.	S.	Farmer.	Doubtful	,,	,,	,,	,,	,,
12	25	320	,,	G.W.; D.H.; F.E.; Avro; B.E.; Camel; Pup.	S.	,,	No	,,	Yes	,,	Sport.	No
13	19	209	,,	D.H.6; B.E.; R.E.8; Avro.	S.	Student.	,,	,,	No	,,	Music.	Yes
14	26	196	,,	M.F.; B.E.; R.E.8.	S.	Window designer and dresser.	,,	No	,,	,,	Motoring.	—
15	20	200	,,	Curtis; Bristol; Newport; D.H.5; S.E.5.	S.	Schoolmaster.	,,	Yes	Yes	,,	Boating and swimming.	—

* About.

Mechan., mechanical; Mod., moderation.

4. Capt. C. Educated at Harrow and Cambridge. Played cricket, racquets, football, went in for swimming and gymnastics. Obtained his house colours for cricket and would have also got his first eleven colours but was expelled. At Cambridge he would probably have got his blue but for the fact that he was sent down. From the University he went to South Africa, where he played cricket to a considerable extent. He joined a cavalry regiment when war broke out, and subsequently transferred to the R.F.C. His favourite amusements are shooting and fishing. He rides, hunts, and motors. He does not read much, but prefers H. G. Wells when he does. He hates poetry, and prefers men's society to women. He was subsequently shot down by an anti-aircraft shell in France.

RESULTS OF INQUIRIES ADDRESSED TO FLYING MEN.

In order to satisfy ourselves as to the accuracy of our opinions we decided first of all to apply to fully qualified pilots for information, and issued a questionaire in which information on the following points was requested.

Age.—Number of hours flying. Whether in France with R.A.F. Types of machines flown.—Married or single.—What is the essential characteristic of a good pilot?—Is alcohol necessary for aviators?—What is your occupation in civil life?—What games and sports did you go in for? What was your special game? Do you ride a horse? Hunt? Motor?—What is your favourite (1) author; (2) poet; (3) amusement; (4) composer?—Is marriage a handicap to an aviator?—What are your views on the selection of candidates with regard to temperament, &c.?

We issued about 250 forms, some to the pilots in our own mess. We gave others to visitors who landed on the aerodrome, and several delivery pilots who flew to France took with them copies and distributed them among the pilots serving on active service. Out of the first issue only 47 were returned to us completed, and with one exception (which was of a frivolous nature) they have been faithfully reproduced. We subsequently issued 200 more and circulated them among pilots in various hospitals and obtained 15 more.

The result of an examination of the replies to the questionaire showed that our opinions agreed with the ideas of the pilots, and some of the answers were very instructive. The authors wish to point out, however, that in their opinion the pilots who answered the questionaire consisted chiefly of the older and more experienced men, and therefore cannot be said to be representative of all classes of aviators. When the questionaire was given to the younger and more frivolous pilots they frequently regarded it as a joke or stated that they had no opinion to express on the question as to the characteristics of pilots.

There are one or two other points which should be noticed also—viz., the question, "Do you ride a horse?" was answered almost invariably in the affirmative, but this does not mean that the pilot was necessarily an expert horseman. Moreover, the question, "Do you hunt?" was misunderstood in one case, the answer showing that the candidate did not realise that "fox-hunting" was meant.

It will also be noticed that in a few cases the replies are distinctly in opposition to the opinions expressed by the authors, but taking the answers generally it will be found that the opinions of the pilots as expressed in the questionaire agree in a remarkable extent with our own. The suggestion which we desire to make, which it is hoped will be of practical value to medical officers, is that every medical examination should be preceded by a few minutes' conversation to ascertain the temperament or make-up of the individual, after which the usual routine methods may be carried out. (See Table I.)

QUESTIONAIRE—SERIES I.

What is the essential characteristic of a good pilot?

The following answers were received:—

1. Quick decisions, control of all actions, and regular habits.
2. To deal quick with all kinds of situation.
3. Alertness and the clear-headedness of a sportsman.
4. Keenness, guts, judgment, and common sense.
5. Youth (under 30), must be quick thinking and alert, good nerves, and of a generally sporting nature.
6. Sound judgment rather than good nerves.
7. Good eyesight, strong, sound heart and lungs, young, alert.
8. A "sport."
9. Common sense as regards his flying.
10. Dash and courage, combined with coolness and quick decision.
11. Abandonment of care.
12. Lack of imagination. Ability to think and act quickly.
13. Light-handedness. No nerve, very little imagination. Quickness in thought and action. Perfect health. Mechanical mind.
14. No imagination. No nerves. Total abstainer. Very accurate shot. Full of confidence.
15. Has good hands. (Able to get the best out of a machine without hurting it.)
16. Clear-headed and quick decision, and no nerves.
17. Perfect health. Plenty of sport and exercise. A clear head.
18. Good judgment essential. Skill and daring, combined with a certain amount of reserve.
19. Keenness, health, guts, and cool head.
20. Sound judgment, must not be over-cautious; prepared to take risks, and reasonably sound physically.
21. Steadiness, accuracy of judgment, coolness and ability to rise to occasions.
22. Youth and nerve for a stunt pilot. Cool head and sporting instinct.
23. Good sportsman.
24. ?
25. Common sense.
26. Good judgment, quickness of decisions.
27. Guts.
28. Clear and steady brain, always prepared for an emergency.
29. Good nerves. Anyone who thinks and plays most outdoor sports and shoots.
30. For war purposes plenty of guts and good hands and nerves.
31. A capacity to keep and use one's head under all circumstances.
32. Clear head and plenty of pluck.
33. A happy-go-lucky; cool head.
34. Guts for a war pilot.
35. There is none.
36. Lacking in imagination. Confidence, but not over-confident.
37. Good eye for judgment and common sense.
38.
39. Cool judgment.
40. "Guts" and a sound head.
41. To be a sound pilot and to have "gut."
42. Guts.
43. Good health, confidence, and nerve. He should be steady. Know how to enjoy himself without over-doing it. To be a stunter he should know as little about machines and engines as possible. Good sportsman, with public school training. A colonial or outdoor life. Show great keenness in his work. Be always wanting to fly. That he should be a man of either colonial type or a public school boy with a good education and manners—i.e., colonial, public school man, jockey and hunting man, racing motorist and cyclist, cavalry officers.
44. Fitness. Common sense.
45. Plenty of nerve. Lack of imagination, and to be of a type that intends not to be beaten by anything.
46. "Guts."

What are your views on the selection of candidates with regard to temperament, &c.?

1. Should be a sporting man, who has absolute control of his nerves, but he may be highly strung and emotional and sentimental, and a man with determination.
2. Different for all types of pilots required.
3. A certain atmosphere about the man which cannot be defined, but is immediately recognised by an old pilot.
4. I consider that when figures are available a great many men will be turned down at once who would go a certain distance before they proved dud, saving considerable time and expense.
5. As a general rule, select no one showing much eccentricity.
6. Have not given the subject sufficient thought to justify an answer.
7. Cheerful and bright disposition.
8. Good appearance, alert, active, decisive, 20-30 years of age.
9. Young, sporting, healthy.
10. Should be moderately highly strung, with an alert brain, but able to keep cool in an emergency and act with lightning rapidity.
11. Youth, 18-24. Spirited, quick, courageous—not caring a damn for anyone or anything. (My experience very strongly suggests that a pilot should never be persuaded to fly if he is not absolutely fit or desirous of flying. Hucks, for instance, has had a very lengthy experience only made possible by not flying when not so inclined.)
12. Candidates should be young and of a cheery disposition and keen.
13. They should have taken a certain amount of interest in aviation from its earliest days. They should be of a mechanical turn of mind. They should be quick but not nervy. They should nave very little fear and a good temper.
14. Should have an engineering bent.
15. Should be a public school boy—used to an open-air life—not a clerk—should be a cavalryman or jockey or hunting man.
16. Bright, cheerful, a thorough sportsman, and keen on his job.
17. A man that is fond of sport should, in my opinion, make an excellent and reliable pilot. A man that is not sharp and alert will never be much use as a pilot.
18. A keen sportsman, not too high-spirited. One who can sum up the ordinary risks of flying without increasing same by silly, unnecessary stunting; fairly good education
19. Two types: (1) Youth, health, and lack of responsibility for scouts and fighters. (2) Older men, steady nerves, and more cautious for other types.
20. A man who can drive a car well and hold his head in a tight corner should be an excellent pilot. Should be bright, quick, and naturally alert, a man good at swimming and all-round athletics.
21. I consider that the youth who is of an "artistic temperament," or otherwise highly strung, makes a sounder and more accurate pilot than one who possesses mere strength. Yachtsmen seem to make good pilots.
22. I think if the candidate is a sportsman, and in other respects of normal temperament, there is no reason why he should not become a good pilot. Probably the best age is 19-20-21. Lots of pilots of 20 and over will never be stunt pilots owing to imagination or foresight, but they may be exceedingly good, reliable, and steady pilots.
23. Keenness to fly ought to cover everything. If a candidate is genuinely keen he'll do. A steady nerve is most useful.
24.
25. They ought to be of good organic constitution, have good eyes, and be of a cheery disposition.
26. Aptitude for sports best indication.
27.
28. One who is of quiet, steady bearing, with a fair knowledge of motors.
29. Like all games (outdoor), cannot be judged by appearance or first few hours' dual or solo flying.
30. It is hard to say at first sight, but common-sense and coolness should count most.
31. One's will-power must control one's imagination.
32. Strong nerves and a light touch.

33. A man who does not boom himself up.
34. I think it extremely difficult to decide at first appearances, which I have proved to be very misleading in many cases. If a man is not keen on and fond of flying he rarely makes good. Coolness in an emergency and a rapid appreciation of the correct thing to do in an emergency is essential.
35. Young, should have led an ordinary outdoor healthy existence. For war work he should be very ignorant of aeroplanes, but keen enough to watch good flying.
36. (1) Find out whether he is really fond of flying and keen, or whether he joined to get a soft job. (2) Previous service in infantry as a private. The knowledge of engines: (1) Necessary if you don't trust your mechanic. (2) Not necessary if you have a good mechanic you can trust. If you have not got an extensive knowledge of engines and you have a dud engine you go on and don't worry. If you have a knowledge of engines you get wind up.
37. Anyone good at games or a good car-driver will make a good pilot in all probability, but not in every case.
38.
39. He must be coolness personified, but with an ever-present alertness. A bright outlook on everything and always cheery. Honour will make him stout.
40. "Cheery-and-full-of-life" men are the best pupils and turn out well. Excitable people are very often good, but they do not last long as a rule. Even-tempered and patient people are the best, but "health is better than wealth."
41. Good health is essential.
42.
43. He must be good at sports and lead an active outdoor life. Strong nerves and patience.
44. They should be fit in every way. Under 30 years of age. Unmarried. They should not have too much imagination or be of an excitable disposition.
45. To be able to take part in everything and yet keep within limits.
46. (1) Lack of imagination, and (2) endurance.

QUESTIONAIRE—SERIES II.

What is the essential characteristic of a good pilot?

1. To realise danger on the ground but not notice it in the air. Coolness in difficulty.
2. Self-confidence.
3. Keenness and good condition (physically).
4. Coolness, quickness in emergency, and general common sense.
5. Steady head; good constitution; self-confidence.
6. Sporting, and for choice one who has travelled and roughed it.
7. Cool head, confidence, and alertness.
8. Quickness of thought and action.
9. Quick thinker.
10. Keenness and bravery toned with discretion.
11. Sportsmanship and pluck.
12. Level headed, steady, not excitable.
13. Concentration, rapid calculation and decision.
14. A quiet and steady disposition but always cheerful.
15. Good health, a clear head, strong nerves, keenness for excitement.

What are your views on the selection of candidates with regard to temperament, &c.?

1. An apparently nervous man will sometimes make the best pilot; this sort of man is very often only nervous of personality.
2. A nervous temperament does not necessarily handicap a pilot; often it is the reverse. Quickness of thought and lack of hesitation essential.
3. Self-confidence and ability to act on one's initiative.
4. An acceptable candidate should be a man of cheery, equable temperament, tending more towards the "devil-may-care" attitude than otherwise.
5.
6. One who is not too cocksure of himself and gives an impression of knowing overmuch. A shy, nervous man in most cases makes a very good scout pilot, and the man who shows great determination usually makes a heavy-handed pilot. The Colonial is at his best at the age of about 19 to 23, and the Englishman who has done little or no travelling from 23 to 26. The Englishman who has travelled vastly and roughed it makes an exceedingly good all-round man and is probably the best of all.
7. A good selection would be an athletic, outdoor living man, the rougher the game he plays the better the pilot he will make.
8. A volatile temperament is best, but does not last long. Steadiness of nerves is good for pilots during C.B. (counter-battery) shoots, but for others the essential thing is to be quick in appreciating a situation; those who do this on the ground can do it in the air.
9. Moderate smokers and drinkers. Men that go in for all kinds of sports.
10. If a man is keen to fly give him a chance to make good. Some extraordinary types of men make splendid pilots.
11. Select any sportsmanlike public schoolboy, it is then only a question of nerve, as 90 per cent. of men can fly. The best war pilot is nearly always an infantry officer with trench warfare experience.
12. Young—not highly strung—with as little imagination as possible.
13. A new pilot should always be ready to take advice, always wide awake, temperate in everything, independent, certain amount of originality.
14. Flying does not suit highly-strung or excitable people; in my opinion, it needs a man who can decide on the instant and who can fly without thinking of actually what he is doing. Anyone who can judge distance well would make a good pilot.
15. The most successful seem to be those who are not too young—steady, ready to act without thinking first, and a good sporting instinct.

THE PHYSICAL AND PSYCHOLOGICAL ASPECTS OF FLYING.

The physical condition should always be compared with the temperament of the individual, but the physical examination should always be preceded by the psychological. *Mens sana in corpore sano* is the ideal type, the healthy mind being the first essential qualification.

If we compare a first-class boxer with an aviator we notice certain similar characteristics. The essential attributes of a good boxer are courage, quickness, good muscular coördination, and ability to anticipate his opponent's intentions so as to deliver his own blow first. Powerful muscles and a large lung capacity are no indication whether a man is likely to be successful as a boxer unless he has the temperament as well.

The possession of a suitable temperament is the criterion of the individual's ability to fly; the possession of a suitable physique is the indication whether he can fly to great heights or whether he will stand the strains and stress of continuous flying. The following examples show that physical fitness without a suitable temperament is no indication of ability to fly. The cases mentioned were all able to pass the routine tests for physical condition, but after a course of instruction in elementary flying were sent by their instructors for a medical examination with statements that they showed no aptitude and recommended them to be withdrawn from instruction as "temperamentally unfit."

Examples of Unsuccessful Canaidates.

1. Second Lieut. W., aged 18, single, clerk. Used to play football for boy scouts on Saturdays. Board school education. As soon as he realised that eventually he would have to fly by himself he showed signs of "nervous breakdown," complained of headache and loss of confidence.
2. Second Lieut. S., aged 18½, single, fitter in engineering works. Played games slightly. Educated at technical school. Loss of confidence when ready for solo.
3. Lieut. J. S., aged 24, single, architect's clerk. Played games slightly. Education fairly good. After failing to pass as a cadet in the R.F.A. he joined the R.F.C. When ready for solo refused on account of fear.
4. Lieut. S., aged 23, married, one child, electrical engineer. Went in for cycle racing. Education poor. Was quite happy in the air as long as the instructor was there, but could not face the responsibility of flying alone. Joined on account of pay and avoiding infantry.
5. Second Lieut. R., single, artist. Games: Nil. Education fair. Dreamy, emotional, artistic. Showed no aptitude to fly.
6. Second Lieut. M., single, purser's assistant 4½ years. Games: Nil. Education fair. Stammers. Not keen on flying. Joined because he was always asked why he was not in the Army. Showed no aptitude.
7. Second Lieut. W., aged 22, single, clerk. Games: Slight. Education fair. Had a "breakdown" before the war. Began to stammer on active service. Admitted to hospital with laryngitis. During his stay a crashed pilot was brought into the ward and he fainted. Subsequently gave up flying.
8. Second Lieut. P., aged 19, single, at school. Played games considerably. Education excellent. Hereditary nervous temperament. Stammers when excited. Hypochondriac. After 18 hours dual showed no aptitude.
9. Second Lieut. T. D. W., aged 18, single, chartered accountant apprentice. No games of consequence. Higher grade school education. Crashed on first and second solo; was able to obtain his elementary instruction certificate at the School of Instruction, but stated that he now has a sense of impending disaster, which suggests a breakdown before long.

All the above cases passed the physiological tests for respiration, circulation, balance, &c.

Examples of Physically Unfit Men with a Suitable Temperament who were Successful Aviators.

1. Lieut. W. A pilot of great determination, resolution, and strong personality, alert, cheerful, and optimistic. Physically he was muscular, plethoric, cyanosed complexion, and short-winded. When I knew him he was flying regularly as a ferry pilot, but stated that he disliked flying over 3000 feet.
2. Lieut. T. An alert, happy-go-lucky schoolboy type. Fond of dancing and rag-time, has a keen sense of humour, is inclined to be obstinate, very keen on flying, and very jealous of his reputation as a pilot. Apparently possesses little or no imagination and knows little of the details or construction of engines or aeroplanes. Physically he is "borderline" on tests. In addition he is a confirmed mouth-breather, and there is a systolic murmur at the apex of the heart, which is displaced downwards. His present occupation is a test pilot (Camels, D.H. 4 and D.H. 9). He flies every day at an average height of 10,000 feet, and usually rolls, loops, and spins. He flew a Bristol fighter to 21,000 feet under my own (T. S. R.) personal observation and showed no signs of distress.
3. Lieut. C. An alert, cheerful type. Flew 60 hours in France as an observer and was successful in various combats. Showed considerable aptitude in flying. Physically he failed to pass the tests.
4. Second Lieut. M. C. Cardio-vascular debility. Cyanosis. Cold hands and feet. Distress at heights. Flying regularly as a ferry pilot.
5. Second Lieut. Y. Early phthisis. Flying to France several times a week. Has to be kept under careful observation and given a rest occasionally.
6. Second Lieut. J. Hypertrophy and dilatation of heart; occasional attacks of syncope. Fainted in the air on two occasions. Is now an instructor. Previously has been a ferry pilot and test pilot.
7. Second Lieut. B. Cardio-vascular debility. History of malaria and dysentery. Fainting at heights. Flying in India.

MARRIAGE.

The following figures show the percentage of married and single who qualified in elementary flying from Sept. 29th, 1917, to Jan. 24th, 1918, at a School of Instruction:—

Total number of pupils, 369; married, 36; single, 33.
Number of single men who failed to qualify, 13 = 4 per cent.
" married " " " 6 = 17 "

Table II. shows that the married man takes longer to learn to fly than the single man. It will be noticed that the dates of arrival and departure of the married men are compared with those of a single man who qualified in the same month, as the number of flying hours per day varies from month to month according to the weather. The age of the married men was probably greater than the single, but they were all within age-limit standard.

TABLE II.

(A) Date of arrival at school of instruction. (B) Date of departure.

Married.			Single.		
Name.	(A)	(B)	Name.	(A)	(B)
2nd Lt. F. S. ...	23- 3-18	25- 4-18	Lt. L. O. S. ...	23- 3-18	15- 4-18
2nd Lt. G. L. ...	3- 3-18	27- 3-18	2nd Lt. C. L. ...	3- 3-18	27- 3-18
2nd Lt. A. M. ...	9- 2-18	18- 4-18	2nd Lt. R. K. ...	3- 2-18	3- 4-18
2nd Lt. A. M. ...	21- 1-18	18- 3-18	2nd Lt. A. M. ...	21- 1-18	2- 2-18
2nd Lt. H. H. ...	21- 1-18	11- 3-18	2nd Lt. G. F. ...	21- 1-18	2- 2-18
2nd Lt. C. S. ...	16- 1-18	22- 3-18	Lt. J. J. ...	16- 1-18	1- 2-18
2nd Lt. C. C. ...	16- 1-18	4- 3-18	2nd Lt. K. H. ...	16- 1-18	4- 3-18
2nd Lt. T. A. ...	8- 1-18	2- 4-18	2nd Lt. L. B. ...	7- 1-18	20- 2-18
2nd Lt. J. C. ...	8- 1-18	23- 3-18	2nd Lt. H. A. ...	7- 1-18	5- 2-18
Capt. G.	26-12-17	7- 4-18	Capt. D. ...	26-12-17	2- 2-18
2nd Lt. T. O. ...	20-12-17	3- 4-18	2nd Lt. H. K. ...	20-12-17	2- 2-18
2nd Lt. J. W. ...	17-12-17	19- 2-18	2nd Lt. W. R. ...	17-12-17	9- 1-18
2nd Lt. F. W. S.	21-11-17	15- 2-18	2nd Lt. R. W. ...	21-11-17	3- 2-18
2nd Lt. W. T. ...	7-11-17	29-11-17	2nd Lt. T. M. ...	7-11-17	23-11-17
2nd Lt. F. G. ...	9-10-17	17-12-17	2nd Lt. H. S. ...	9-10-17	18-10-17

Analysis of Table II.

	Married.	Single.
Total number of days under instruction	936	433
Average ,, ,, ,, ,, ...	62·5	28·86

OBSERVATION OF THE CHARACTERISTICS OF UNSUCCESSFUL PUPILS UNDER INSTRUCTION.

We desire to draw attention briefly to the following physical disabilities which are associated with temperamentally unfit pupils: (1) Stammering; (2) minor defects of vision; (3) adenoids, or nasal obstruction; (4) poor peripheral circulation; (5) loss of tone (soft and flabby muscles, moist and cold hands, pale complexion, stomach splash, &c.). We do not suggest that any one of these defects necessarily disqualifies a pilot, but that their presence indicates a tendency to an unsatisfactory temperament.

The temperament of the unsuccessful pupil is the antithesis of that we have previously described, but we will enumerate the main points:—

1. *Early life.*—Did not play games at school to any extent, and seldom went in for sports. Amusements usually indoor.

2. *Occupation.*—Usually clerical or sedentary.

3. *Age.*—Candidates of 30 years or over were hardly ever successful.

4. *Marriage.*—The married men are rarely successful, and if they do qualify, rapidly suffer from "nerves."

5. *Object in joining the Flying Service.*—Usually on account of pay or else to avoid the infantry. Do not show any enthusiasm about flying.

6. *Mentally.*—They are sluggish, dreamy, emotional, self-conscious, lacking in sense of humour, and devoid of that elusive quality commonly known as "guts."

7. *The family history* is often suggestive. One of our unsuccessful pupils inherited a nervous temperament from his mother; another, who was lacking in judgment and also an alcoholic, was the child of an epileptic; a third gave a history of his father committing suicide; and so on.

8. *Whilst under instruction* the unsuccessful pilot flies erratically, grips the control lever much too rigidly, makes the necessary movements jerkily, over-rectifies all errors, and to the onlookers gives one the same impression as a badly ridden horse. In short, he does not possess "hands."

THE STRAIN AND STRESS OF FLYING.

BY LIEUT. E. G. MANUEL, R.A.F.

The prospective pilot, whilst a pupil under instruction, very quickly shows whether he has aptitude for flying when he goes up for his first solo. It is then, properly speaking, that the strain begins. The first solo is a great strain, but in some respects is not so great as are the second and third; firstly, because the pupil is keen to do his flight, and, secondly, he has not before realised the unconscious confidence he has in the presence of his instructor, and the utter loneliness he feels when in control of a machine of which he knows very little.

The strain of ordinary straightforward aerodrome flying, to the qualified pilot, consists chiefly in the liability to engine failure and the fear of crashing the machine on landing. In cross-country flying the strain is much greater; there is still the fear of engine failure, which, in this case, may occur over unsuitable country, with the certainty of a crash. Added to this the pilot has to find his way, try to read a map, work his controls, and keep an eye on the compass. In addition he may meet unfavourable weather, and be given the choice of flying at a dangerously low altitude or going above the clouds and frequently getting lost, with the added anxiety that in the event of engine failure he cannot see the kind of country he is over until at too low altitude to pick on suitable landing ground. In cross-country flying fog or ground mist is the pilot's greatest enemy. Unless exceptionally lucky he is bound to lose his way, and in the event of a forced landing is absolutely helpless and perfectly certain to crash into some obstruction.

The strain on the single-seater pilot is greater than on the two-seater pilot, as, in addition, he has a sense of loneliness. Irrespective of the type of machine, this is accentuated at heights in the majority of cases. Inability to stand heights is not infrequently due as much to psychological causes as to distress caused by insufficient oxygen.

Flying Overseas.

There is certainly a cumulative strain on the pilot, greater than any other form of aviation. Duties overseas consist of: (1) artillery observation; (2) offensive and defensive patrols; (3) trench strafing; (4) night bombing; (5) day bombing; (6) long reconnaissance and photography.

One of the greatest strains on the pilot's nerves is when he sees one of his friends go down in flames, or, after arriving at the mess, he learns that so-and-so is missing. When this occurs with monotonous regularity it is very hard for the pilot to maintain his mental equilibrium. There is no branch of the service where losses are more keenly felt.

In long reconnaissance and bombing raids the chief anxiety is again one of engine failure and forced landing in enemy country, or getting detached from one's flight for some reason or other and becoming a comparatively easy prey to a group of hostile machines. Probably the strain that tells most on the pilot is the constant anti-aircraft fire. He begins by disliking it intensely, has a period of complete indifference, followed by an obsession that he has escaped so long that he must be hit at any moment. Though this strain is felt by all pilots, whatever their duties, it is most marked in those on fighting machines, two-seaters or scouts. This work usually consists of patrolling a definite strip of enemy country for a period of two to three hours. They have to prevent any hostile machine from crossing the lines and engage in combat any group of enemy machines they may come across. Whilst the chance of a fight is eagerly welcomed as a distraction, it frequently happens that no combatants appear for long periods, and the pilots are left without any occupation to distract them from the constant anti-aircraft fire, which, from the fact that the machines are constantly passing and repassing the same strip of territory, allows unrivalled opportunity for good shooting.

During the last few months great attention has been paid to low flying (at 500 feet or less) attacking the enemy with machine-gun fire in his trenches, whilst marching along the roads, in rest billets behind the line, &c. The strain of this kind of flying is great, as the machine is subjected to a tremendous amount of machine-gun fire, and, when working in conjunction with an infantry attack, is continually in, or very near, the barrage fire put up by the artillery. A hit that might only temporarily disable the aeroplane and give the pilot time to recover from it flying at a height is probably fatal when so near the ground.

THE Glasgow University Unionist Association have decided to invite Sir Henry Craik and Sir Watson Cheyne, the present Members for Glasgow and Aberdeen and Edinburgh and St. Andrews Universities, to become Unionist candidates for the new constituency of the four combined universities at the next election.

MIDDLESEX HOSPITAL.—The opening of the winter session of the Medical School will take place on Tuesday, Oct. 1st, at 3 o'clock, when Lieutenant-General T. H. J. C. Goodwin, Director-General Army Medical Service, will occupy the chair. The prizes will be distributed by the Dowager Countess Brassey, and Dr. C. H. Browning, the director of the hospital's pathological laboratories, will deliver the opening address, the subject being the Importance of Research Work in Connexion with National Health.

SOME REMARKS ON
CHRONIC INTESTINAL STASIS.

BY SIR W. ARBUTHNOT LANE, BART., M.S. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON, GUY'S HOSPITAL, ETC.

FOOD products that are absorbed from the gastro-intestinal tract are carried by the portal vein to the liver. In that organ they undergo a process of purification. Certain organisms or toxins are destroyed or are converted into materials harmless to the tissues through which they are to pass, and are eliminated by the several excretory organs, as the kidneys, lungs, and skin.

The thyroid gland secretes material which acts as a stimulant to the tissues and keeps their metabolism working at a normal rate. This substance has been obtained in a pure form at the Mayo Clinic, and is described in the Transactions of that clinic for 1917 by Mr. E. C. Kendall. This discovery is an admirable example of the excellent research work carried on in that institution. The adrenals and the pituitary gland also act in controlling certain tissue changes by means of their secretions. The spleen produces a proportion of leucocytes and destroys a number of effete red corpuscles. Many other instances of specific glandular activity will readily occur to the reader.

Effects of Deleterious Materials on Liver.

If material of a deleterious character greater in quantity than the liver can deal with is absorbed by the radicles of the portal system, certain changes must result in all these tissues, or rather the tendencies to such changes must exist.

I have demonstrated in the anatomy of the labourer that the habitual repetition of the tendency to change results in the fixation of the change, and later in its exaggeration, so that a condition is finally obtained which differs completely from the normal and is perfectly characteristic of the occupation of the individual. In consequence the skeleton becomes unable in many instances to perform its original normal function. I refer, for example, to the ankylosis of the vertebræ and of the costo-vertebral joints in the coal-heaver. I might multiply illustrations indefinitely.

The excessive strain on the function of the liver cells, whereby poisons are rendered harmless, must after a sufficient time in a similar manner result in damage to the liver, so that it is no longer able to perform many of its normal functions efficiently.

Here I would remind the reader that in the labourer every change that is developed in the pursuit of his occupation with the object of improving his usefulness for his special function tends to shorten his life. This is also illustrated by the bands which develop about the intestines in the line of strain. At first these help to support the intestines and to obviate their prolapse. Later they form obstacles to the free passage of material through the portion of the bowel to which they are attached. I believe that a similar effort on the part of the cells of the liver to meet the habitual flooding with deleterious matter brings about a change in them that is at first advantageous and enables them to perform their increased functions more efficiently for a time. This, however, sooner or later results in their undergoing degenerative processes which render them less and less efficient.

Just as every change, which the skeleton of the labourer undergoes in order to accommodate itself to its surroundings, tends to shorten the life of the individual, so do all the changes, which the organs undergo to meet their surroundings in association with and dependent upon those in the gastro-intestinal tract, tend to shorten life. Such changes in the organs are classified as diseases.

Effects on Other Organs.

I do not know whether bacteria and toxins from the intestine reach the systemic circulation through the thoracic duct and so escape destruction in the liver, though I am aware that they reach the regional lymphatics, since Dr. N. Mutch has obtained bacteria from that source on many occasions in cases of intestinal stasis.

The deleterious materials, whatever they are, which pass unchanged through the liver and get into the systemic circulation damage every tissue in the body; none can escape their baneful effect. The liver also suffers through its nutritive supply from the hepatic artery, and its usefulness is still further depreciated in consequence.

The impure blood would appear to act in a similar manner on the thyroid gland. Clinically, in a typical case of intestinal auto-intoxication the thyroid gland at first enlarges as if stimulated to excessive function. As time goes on it steadily diminishes in size till the isthmus can no longer be felt by the finger. Associated with this atrophy symptoms develop that suggest a defective function of this gland.

It would seem fair to argue by analogy that the adrenal and pituitary glands behave in a similar manner in their attempt to meet the disability that results from the supply to their tissues of blood contaminated with deleterious products. The evidence of the defective action of the adrenal is suggested by the very typical pigmentation of the skin which develops in chronic intestinal stasis. I have described on many occasions the deleterious action of the impure blood on many others of the tissues in the body.

How the blood-forming organs behave we can judge by the anæmia which is always associated with this condition sooner or later. This anæmia would appear to be the result of flooding of these organs with impure blood which depresses their functional activity.

The kidneys suffer from the filtration through them of irritating products, and changes take place in consequence after a time. The evidence that these degenerative processes are due to the presence of toxic material in the blood is shown by the fact that all manifestations tend to disappear with striking rapidity when the source of fouling of the blood stream has been removed.

Secondary Infections.

Owing to the lowered resisting power of the tissues to the entry of the organisms foci of infection are readily developed. The septic products of such infection are carried directly into the systemic circulation and are not filtered through the liver. Consequently the effects which are exerted on the body by these secondary infections are much more harmful. This can readily be illustrated.

A patient suffering from intestinal auto-intoxication becomes affected by rheumatoid arthritis. The progress of this disease may be slow till the additional development of pyorrhœa occurs. The absorption of the toxins from the diseased gums into the blood stream at once exaggerates in a remarkable manner the rate of progress of the rheumatoidal condition. The curing of the pyorrhœa by local application or by the unnecessary removal of the affected teeth immediately effects a very marked improvement in the condition of the diseased joints. This is sometimes so apparent as to lead casual observers to assume that the rheumatoidal infection was consequent solely on the infection of the gums, since they do not realise that both infections have a common causal antecedent in the lowered vitality which results from chronic intestinal stasis. At the same time, it shows very clearly how one secondary infection may accentuate another and how necessary it is to search for such infections. Especially is this the case when the infecting organism is the same in the two foci.

The freeing of the portal circulation from products of auto-intoxication at once stops the progress of the rheumatoid arthritis and facilitates the rapid and permanent cure of the affected gums.

Another instance of a secondary infection of the alimentary canal is that which results in pernicious anæmia, a disease apparently due to hæmolysis produced by an unknown specific organism.

Changes in Liver, Breast, and Pancreas.

Not only is the liver tissue damaged by an excess of one of its functions and by the impure blood supplied for its nutrition through the hepatic artery, which also contains toxic material, but its tissues can also be injured through the ducts which permeate every portion of its structure. Dr. Mutch has demonstrated very clearly by cultures made from cases of chronic intestinal stasis operated on by me that the whole length of the small intestine, including the duodenum, often contains infective organisms, and there is no doubt whatever that these organisms may extend along the ducts of the liver and pancreas and produce changes in the walls of the ducts and in the cells and connective tissues of these organs. I suggested the probability of the existence of this sequence in my earliest papers on stasis, and it is satisfactory that these hypotheses have received such definite confirmation from Dr. Mutch's extensive and elaborate researches.

Now let us consider the conditions or changes that develop in the liver in consequence of the infection of its ducts, from the flooding of its tissues with impure blood through the hepatic artery, and from the excessive demand made upon it by the abnormal quantity of toxic materials and of organisms which are carried to it through the portal circulation. That definite and important degenerative changes must result sooner or later in varying degrees from these influences is undeniable. At the same time, we are not sufficiently well informed to be able to determine how each of these agents acts. We know enough to recognise some of the effects.

For instance, we are very familiar with cholecystitis and the associated changes in the larger ducts of the liver. We also know that gall-stones are produced by infection of the gall-bladder, and are sometimes formed in the ducts of the liver. Later results are the blocking of the cystic duct, the common bile duct, and of the intestine by gall-stones, together with cancer of the cystic and common bile ducts, from the irritation produced by the presence of these stones. How far primary cancer of the liver is produced by irritation of the terminal ducts or of the cells and connective tissue by impure blood I am not in a position to demonstrate, though by analogy there would appear to be but little doubt as to the causal association.

I think the various forms of cirrhosis are explicable in the same way. For instance, the distribution of the changes in Hanot's disease suggests an ascending infection of the biliary ducts, while those of portal cirrhosis appear to be due to toxins reaching the liver through the portal vein.

In every advanced case of chronic intestinal stasis the presence of induration of the pancreas can be demonstrated, and there is no doubt that carcinoma develops in these fibrous patches. I showed many years ago that it develops in the breast, which undergoes similar changes from intestinal auto-intoxication. I notice that since I described this sequence as occurring in the breast a number of others have observed and described it. Originally the suggestion was received with ridicule.

It is now generally recognised that traumatism is a necessary causal factor in the development of cancer, though it is probably not the sole factor. Traumatism as a determining factor can readily be demonstrated in all carcinomatous ulcers of the gastro-intestinal tract, whether produced by pressure or impact, as in ulcers of the tongue, pylorus, and large bowel, or by the exercise of excessive strain, as in ulcers of the lesser curvature of the stomach. In cancer of the breast and pancreas the traumatism is apparently effected by the damage sustained by groups of cells from contraction of the fibrous tissue about them, this formation of fibrous tissue being the result of auto-intoxication. It is probable that a similar change due to the same cause antedates the development of cancer in the liver, but this cannot be demonstrated in the same clear manner as in the breast and pancreas. The calculi which form in the pancreatic ducts owe their origin to septic infection, as in the case of the biliary calculi.

Thyroid Gland.

I have already pointed out that in the earlier stages of stasis the thyroid appears to enlarge as if stimulated to perform its function more efficiently. Later it becomes small and hard. That is what one would expect to happen on general principles. McCarrison[1] has demonstrated that the flooding of the intestine with certain fæcal products causes goitrous changes; that these changes disappear if the supply of these products be stopped and if the patient be treated with an intestinal antiseptic; and that these goitrous changes are influenced favourably by the use of such vaccines as tend to sterilise the contents of the small intestine. Also, that a similar result follows the removal of the intestinal infection by operation.

It would appear reasonable to conclude from McCarrison's experiments and observations that—as goitre results from the contamination of the water- or food-supply with ordinary fæcal matter and can be cured by the cessation of the infection—goitrous conditions as they exist among people whose food is not contaminated by sewage products are consequent on the absorption from the small intestine of material which has become contaminated by fæcal organisms which have extended up to its stagnating contents from the large bowel. This is the view that I have put forward for many years, and which has received ample confirmation from McCarrison's elaborate researches. In a number of cases of goitre in its several varieties occurring in patients whose food could not have been infected by sewage products and in whom radiography demonstrated the presence of well-marked stasis, and cultures taken from the contents of the small intestine at varying levels yielded organisms, the freeing of the ileal effluent by colectomy or by simpler means had resulted in the restoration of the thyroid body to its normal size.

The results of these operations differ materially in the various forms of thyroidal affections. While the simple goitrous enlargement yields rapidly the size of the adenomatous thyroid diminishes more slowly. The exophthalmic thyroid always benefits in that a remarkable improvement takes place in the patient's health, weight, and happiness, although the special manifestations of the disease do not always disappear completely. Instances of the results of some of these operations are described by Dr. Mutch in "The Operative Treatment of Chronic Intestinal Stasis" (fourth edition).

[1] THE LANCET, 1913, i., 223.

THE DIAGNOSIS AND TREATMENT OF MALARIA.

SOME PRACTICAL HINTS FOR PRACTITIONERS AT HOME, WITH NOTES ON 750 CASES TREATED IN SCOTLAND DURING THE PAST YEAR.

BY D. G. MARSHALL, M.B., C.M. EDIN.,
MAJOR, I.M.S.; CONSULTANT IN MALARIA, SCOTTISH COMMAND.

SINCE the beginning of the war there has been a constant stream into this country from various parts of the world of men suffering from malaria, and this is likely to continue for some years, even after the end of the war. Most of these cases are, or will be, treated in military hospitals, but a very large percentage develop attacks while on leave or after leaving the Service, when they have to be attended by general practitioners. The following notes are written in a plain fashion, devoid of unnecessary detail or complex statistics, in the hope that they may prove of help.

Incidentally these notes may present points of interest to those engaged in the treatment of large numbers of malaria cases, the system of treatment and the results obtained serving as a series of "control" observations for comparison with the results when other and more varied systems have been adopted. Of the 750 cases only one ended fatally, death being due to blackwater fever; the majority returned to duty, only a small percentage, chiefly elderly men broken down by service and the after-effects of malaria, being discharged the Service. Under the system of treatment adopted *relapses* only amounted to 10 per cent. of cases in hospital, or, including those known to have relapsed after discharge, 15 per cent. In the vast majority of relapses rise of temperature only occurred on one day. The attack seldom lasted more than two or three days, these results evidently being due to the efficient administration of quinine.

Diagnosis.

This can only be reached with absolute certainty by finding the malarial parasite in the blood; staining films by Leishman's method is a very simple process, and any medical man who has a microscope with an oil-immersion lens should, with a little practice, be able to detect them; the parasites, however, are often present in very scanty numbers in the peripheral blood, and prolonged search, maybe of several slides, is necessary before a negative diagnosis is made. When microscopic examination is not feasible, thin films of blood on slides or cover-glasses should be made, preferably about six hours after the height of the febrile attack, and sent for examination to some competent authority.

In the absence of facilities for microscopical examination, consideration of the following points will be found useful in arriving at a correct diagnosis.

History of previous attacks.—This is often of great assistance, the patients themselves practically making the diagnosis; a misleading feature is that patients often assert that though they have served for long periods in malarious countries they never suffered from malaria. Probably they

had slight attacks which passed unnoticed or contracted the disease on the journey home. Several cases of this kind have come under my notice.

A colonel who had not been on the sick list during two years' service in Salonika developed typical malaria three months after returning home.

Another, a senior officer of the I.M.S., who vowed he had not suffered from malaria for ten years, developed a temperature after an operation; it was supposed to be influenza, but examination showed the presence of large numbers of malaria parasites in the blood.

Since writing the above an interesting report of two fatal cases has been published. Both men had served abroad; neither had a history of previous malaria. One was diagnosed and treated as influenza, or "P.U.O."; the other was sent to a fever hospital as a case of typhoid.

Nature of attack.—What the old British soldier in India used to describe as "fever and ague," the presence of a distinct cold and hot stage, is fairly typical, but two very important points must be borne in mind. In the æstivo-autumnal or "malignant" type of fever the cold stage is not very marked; there may even be an absence of rigor. The temperature in the hot stage is only moderately high; it is more apt to become remittent in type; this is the kind of case often wrongly diagnosed as enteric.

On the other hand, in old malarials with a temperature due not to malaria but to other causes, as septic infection, syphilis, &c., the attack is apt to assume the character of a typical malarial attack—a cold stage, with severe rigor, rapid rise of temperature, subsiding in the course of a few hours, but recurring daily. A man recently admitted with a diagnosis of malarial relapse was found to be suffering from cerebro-spinal meningitis, which ended fatally in three days.

It may be mentioned here that attacks of this nature are often set up in persons who have previously suffered from malaria by surgical interference, especially in connexion with the genital organs, as passing a catheter on a man or a uterine sound in the case of a woman. If any operation is necessary it is advisable to keep the patient under the influence of quinine prior to and for some days after the operation.

Periodicity.—This is one of the most marked features of malaria. In a typical case of benign tertian the attack occurs every third day, in quartan (an unusual form) every fourth day, in multiple infections the attacks may develop every day, in quotidian, they almost always commence with clock-like regularity at about the same hour. This periodicity is also marked in the complications and sequelæ, such as hæmorrhages, exacerbations of skin affections and nervous or gastric disturbances, which may occur at regular intervals, possibly of weeks.

Pulse-rate.—It may be accepted as an axiom that in malaria the pulse curve always follows the temperature curve, and recognition of this fact may help in the differential diagnosis of enteric and other acute febrile affections in which the pulse is not markedly accelerated in the early stages.

Enlargement of spleen.—Except early in an initial attack this is invariably present, and can be recognised by careful percussion and palpation. During an acute attack there is often some degree of pain in the splenic region due to perisplenitis; in old-standing cases the enlargement may be very marked, extending to, or even past, the middle line.

Effect of large doses of quinine.—In the absence of microscopic examination of the blood this is one of the surest methods; it is very seldom that a case of uncomplicated malaria resists such treatment, but it must be given in adequate doses, at least 30 gr. in the 24 hours; small doses are not only useless, but may be harmful. If a case which appears to be malarial resists such doses repeated for several days some complication should be suspected.

Complications and Possible Errors in Diagnosis.

Complications are many, varied, and apt to be misleading. Space does not permit a lengthy consideration of them.

They occur both during acute attacks and later, all systems of the body being affected. Severe or ambiguous gastro-intestinal symptoms, often simulating appendicitis or dysentery; pneumonia, hæmoptysis, localised and wandering œdema, and other signs of implication of the circulatory system; nervous phenomena, from the extremely fatal "cerebral" form of the disease to obscure signs of peripheral neuritis, are often encountered. Mental disturbance is common, and varies from "confusion" to the more severe forms.

In the case of persons who have been exposed to malarial infection, whether there is a previous history of malaria or not, the probability of malaria being the cause should always be borne in mind when the diagnosis is doubtful. The important point is not to make the mistake of treating local symptoms and leaving the real factor untreated. In reference to this two cases may be quoted:—

1. A lady returning from a visit to India, with no history of malaria, developed fever on the voyage. The case was diagnosed by the ship's surgeon as tonsilitis. After she had suffered with a temperature of 103–105° F. for several days I was asked to see her. When it was suggested to the surgeon that it was a case of acute malaria, he replied, "I never thought of it." The temperature came down and all local symptoms disappeared under quinine, but for some days the patient was in a very critical condition.

2. An officer, who had been treated for some weeks by a civil practitioner, was admitted to hospital last year; owing to attacks of hæmoptysis, pain in hip-joint, &c., the case had been diagnosed as acute tuberculosis and a most gloomy prognosis had been given. Examination of the blood revealed the presence of many malarial parasites. He eventually made a perfect recovery.

Blackwater fever.—This most serious complication so often occurs after the patient has returned to this country that it is worthy of special notice. The onset, which generally follows a chill or is perhaps attributed to a large dose of quinine, is usually sudden, with an initial rigor; there is severe and persistent vomiting, the urine soon assumes the typical "porter"-like colour, is passed in small amount, and there may be actual suppression. On the second or third day, if the patient survives, the skin becomes of an extremely bright-yellow colour. Death may result in the early stage from hyperpyrexia, or later from suppression of urine or cardiac failure.

Treatment.

The following are the routine methods employed in the special malaria wards, Bangour, to which most of the 750 cases under notice have been admitted. This resolves chiefly into the measures to be adopted (1) prior to an attack; (2) during an acute attack; (4) after an attack, to prevent relapses; (4) treatment of complications.

Prior to an attack, especially an initial one, there are often malaise, vague shivering sensations and gastro-intestinal disturbance. It is sound treatment in such cases to administer a dose of calomel followed by a saline aperient, with liberal doses of quinine as early as possible; by these means the threatened attack may be aborted.

During an acute attack careful nursing is necessary. In the cold stage the patient requires, and probably demands, much extra clothing; in the hot stage there is a danger of chill owing to the patient wanting to dispense with what he considers unnecessary clothing; when the sweating stage is past the patient should be carefully rubbed down and provided with warm dry clothing and bedding.

During the cold stage there is often distressing vomiting and severe depression; the vomiting will generally be allayed by sinapisms; in severe cases a hypodermic of morphia may be necessary, but this and the use of alcoholic stimulants should be employed with caution for fear of developing a habit.

During the hot stages there is generally intense headache, with a flushed face and marked photophobia, the patient, even in benign cases, lapsing into a state of semi-coma, the temperature rising to perhaps 105–106° with a correspondingly quick pulse. In ordinary cases cold affusions, the use of an ice cap, with a dose of aspirin and caffeine will relieve the headache. In the severe "cerebral" forms it may be advisable to administer quinine intramuscularly or intravenously, but this is seldom necessary at home. In the treatment of the 750 cases under notice neither of these methods has been employed in any case.

When the urgent symptoms have subsided and the temperature is falling, give 15 gr. of quinine and repeat the dose twice daily, giving a dose on the following day two hours before the attack is due. Continue this for three days or until the attack is definitely checked. In malignant cases the hot stage is often so prolonged that the temperature assumes a remittent type and may not come down to normal for several days; in this case quinine must be given irrespective of the temperature.

The acute attacks, if properly treated, usually subside in 2-3 days, and then the treatment for the prevention of relapses must be adopted.

Prevention of Relapses.

The means to be adopted with this aim are: (1) general treatment of patients and (2) administration of drugs.

General treatment is most important. Chill being one of the most common causes of relapses, patients must be well clothed and carefully advised to avoid chills. On the slightest sign of discomfort or shivering after exposure they should take at least 10 gr. of quinine. A bracing climate is desirable, preferably at a fair altitude. The special wards at Bangour are about 500 feet above sea level, and to this the satisfactory results in the treatment there are to a great extent attributable. The whole muscular system, including the heart muscle, suffers loss of tone in malaria. This loss is not likely to be made good by keeping patients lolling about the wards in a listless manner day by day. After an acute attack patients are kept in bed for a week, they are then given graduated exercises, culminating in the third week with route marches of 2 or 3 miles morning and afternoon or work in the garden or workshops. As soon as possible the fullest possible diet is given, occasionally supplemented by an issue of beer or stout.

Drugs.—After an acute attack the patient is put on 20 gr. of quinine per diem for a week, 10 gr. night and morning after a meal, for the next week 5 gr. night and morning, and for the third 5 gr. after breakfast. As a rule, they are discharged at the end of this period, but if kept in hospital

they are put back to the 20, 10, 5 gr. system. On discharge to duty arrangements are made by which it is ensured that the man will continue the prophylactic use of quinine for two months. In hospital the quinine is administered in the form of hydrobromide, with a small quantity of dilute hydrobromic acid; this salt causes less discomfort or cinchonism than any other.

Excepting in a few cases when it has been deemed advisable to administer it by the rectum, quinine is always administered by the mouth, the frequent reports in the medical journals of inability to give it by this means being due to faulty methods.

If the patient complains that quinine causes sickness or other discomfort, what can be done? Give 10 minims of laudanum half an hour before the quinine. Give it in "compressed" tabloid form or cachets instead of in solution, or in fractional doses—e.g., instead of giving 10 gr. morning and evening give 2 gr. every two hours, and so on until the desired amount has been taken.

In the few exceptional cases where the patient is absolutely unable to take quinine or it fails to check the fever methylene blue forms a very efficient substitute. It is given in the form of pill, 3 gr. with 1 gr. extract of hyoscyamus three times a day. There are many impure samples on the market which are likely to cause bladder irritation, tenesmus, and other discomfort. Methylene blue (pure medicinal) should always be prescribed. It has on many occasions been found to prevent relapses when quinine, by the mouth, intramuscular or intravenous injections, in other hospitals has failed. In cases with a history of blackwater fever it is always used in preference to quinine.

Quinoidin has been tried in many cases with satisfactory results; it causes less discomfort than quinine, and has the advantage of being much cheaper. Galyl is said to afford good results in obstinate cases, but its employment has not so far been found necessary. When the gastric irritation usually associated with an acute attack has subsided the patients are placed on a tonic, as follows:—

℞ Ferri et ammon. citrat... ... ... gr. x.
Liq. arsen. hydrochlor. ... ... m iii.–vi.
Tinct. nucis vomicæ ... ... m v.
Aq. chloroformi ... ... ad ℥ i., t.d.s.

The combination of arsenic and quinine often prevents relapses when quinine alone, even in large doses, fails.

The Treatment of Complications.

Blackwater fever.—The indications for treatment are: (1) Restrain the temperature, (2) promote free secretion of urine, (3) arrest vomiting, (4) maintain action of heart.

1. The ordinary antipyretics should not be employed, careful sponging is generally sufficient.

2. Keep the patient warm, apply hot poultices to the loins, give plenty of diluents—tea, coffee, barley, Vichy, or soda-water; ordinary diuretics are contraindicated, but the following (Sternberg's) mixture is useful:—

℞ Sodii bicarb. ... ... gr. x.
Liq. hydrarg. perchlor.... ... ... m xv.
Aquam... ... ... ad ℥ i.

given every two hours for the first day and every three hours afterwards until the urine clears. If suppression threatens or supervenes, renew poultices frequently, with dry cupping over the kidneys, and administer normal saline by enemata, subcutaneous infusion, or intravenously, with strophanthus by the mouth. Pilocarpine is contraindicated.

3. The ordinary methods—sinapisms, ice, champagne, &c., often fail. Morphia hypodermically is often efficacious and also diminishes the general distress. The best treatment in severe cases is counter irritation of the vagus by painting liquor epispasticus over the course of the nerve on the left side of the neck; this often arrests the vomiting in an hour or two when all other methods have failed.

4. The usual heart stimulants may be employed; strophanthus is better than digitalis; the use of alcohol except in the form of champagne is inadvisable.

There is generally hepatic congestion with constipation; a dose of calomel and an aperient should be given early in the attack.

It is a much disputed question whether quinine should be given or not. Founded on Bastianelli's rule the following lines of treatment are recommended. 1. If parasites are found in the blood during or after an attack the bihydrochlorides or hydrobromides should be given, but in fractional doses; the ordinary sulphate should not be prescribed. 2. If parasites are absent do not give quinine. 3. If in doubt—e.g., if a thorough examination of the blood is not possible, avoid quinine.

In the treatment of other complications it must be remembered that they are in great measure due to malaria, and the administration of quinine should never be neglected. It is often found that in persons returning from malarious countries affections which have resisted all other forms of treatment for long periods yield readily to quinine.

NOTES ON THE SYMPTOMATOLOGY AND MORBID ANATOMY OF SO-CALLED "SPANISH INFLUENZA," WITH SPECIAL REFERENCE TO ITS DIAGNOSIS FROM OTHER FORMS OF "P.U.O."

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THE recent outbreak of what appears to be a new form of "influenza," so-called, has greatly added to the number of cases admitted to the base hospitals with the provisional diagnosis of "P.U.O.," and some months' experience in the medical wards of a large base hospital in France has suggested to me that it would be useful to attempt to classify the chief diagnostic features of some of the principal conditions which are admitted to hospital with this diagnosis.

The term "P.U.O.," although useful and in some cases necessary, is too loose to be wholly satisfactory. Moreover, a more exact diagnosis is desirable, both from the point of view of prophylaxis and, if necessary, isolation, and also for the purpose of prognosis as to the probable duration of the patient's unfitness for military service.

Certain of the conditions liable to be included under this heading have but to be remembered to be excluded in the majority of cases by appropriate clinical or bacteriological examination. Among these may be mentioned (1) malaria; (2) *Bacillus coli* infections, particularly coli bacilluria; and (3) malignant endocarditis. But a smaller group remains, comprising (4) the trench fevers; (5) the enteric group, including typhoid and paratyphoid fevers, which for my purpose may be considered together; (6) the influenzal group, including true influenza, and the recent epidemic, which in the present condition of uncertainty as to its bacteriological causation, may be provisionally termed "Spanish influenza"; and (7) certain aberrant cases of cerebro-spinal meningitis.

Symptomatology.

The symptomatology of "Spanish influenza" is characteristic, and in view of the extreme prevalence of this disease at present it will be useful first to consider in some detail the principal features of this complaint as seen in France, considering *en passant* the various points which serve to distinguish it from other diseases closely resembling it.

The *incubation* period appears to be short, about 3–4 days. The mode of *onset* is characteristically sudden. A patient may be at work in his usual health in the morning and in the evening he may be in hospital with a temperature of 102°–104° and presenting the appearance of acute illness. The earliest symptoms are usually shivering, pains in the limbs and back and very severe headache—generally, but not invariably, frontal in situation—and sore throat, and in almost all cases an irritating severe cough is also complained of.

The appearance in most cases is quite characteristic. The patient lies curled up in bed in a drowsy condition, with flushed face and injected conjunctiva, but there is little coryza, and physical signs, in the early stages at any rate, are remarkable by their absence. The facies, apart from the absence of coryza, very much resembles that of a measles patient a day or so before the appearance of the rash.

Although severe sore throat may be complained of, little can be seen in the throat beyond some general injection of the fauces, but in some cases œdema of the uvula or slight degree of tonsillitis is present. Severe and irritating dry cough is usually present, but there may be no discoverable physical signs in the lungs at first. On the other hand, some coarse rhonchi may be heard all over the larger bronchial tubes, or a few crepitations may be heard at one or both bases. In other cases there is an early generalised bronchitis, and in some few instances a dry pleurisy, particularly in the left axilla, may make its appearance almost at the onset.

A small percentage of patients develop serious *pulmonary complications*, and the pneumonia arising in these cases presents several distinctive features. It is of a mixed lobar and broncho-pneumonic type. Several large patches of consolidation may be found, but not as a rule at the extreme base of the lung. Favourite situations appear to

be in the axilla, or in the middle third of the lower lobe. A remarkable feature is the not infrequent presence of well-marked ægophony without other signs of fluid over the consolidated area. The very loud tubular breathing and crepitations, together with the increased vocal resonance and the presence of the signs of more normal lung tissue below the patch, suggest that this ægophony is due to a very thin layer of purulent exudation over the pneumonic patch, shut off by pleural adhesions, and thus prevented from gravitating to the lower part of the pleural sac. This is confirmed by the post-mortem findings.

In some of these influenzal pneumonias the toxæmia is severe, and death rapidly ensues from acute heart failure. These cases frequently present an appearance very similar to that of a patient suffering from purulent bronchitis. The colour is a curious bluish tint, suggesting at first sight that he is suffering from extreme right heart failure, but physical examination of the heart and pulse does not confirm this, and the condition appears to be due to extreme toxæmia rather than to any mechanical embarrassment of the right heart. In other cases not quite so acute œdema of the lungs supervenes, large quantities of semi-purulent sputa are expectorated, but the patient dies from heart failure secondary to asphyxia.

The *heart condition* of a very large proportion of these cases of "Spanish influenza" is interesting. Without any marked alteration in the size of the heart as discovered by physical examination, and with the apex beat little if at all displaced, there is a well-marked reduplication of the first sound at the apex or of the pulmonary second sound, which is also frequently accentuated; not infrequently both sounds are reduplicated. In many cases this probably indicates the presence of some degree of myocarditis. It is noteworthy that in a large proportion of cases examined post-mortem here myocarditis was found, and more or less dilatation of the heart was constant. In cases in which a murmur develops and becomes increasingly musical, with displacement of the apex beat, the question of an early ulcerative endocarditis must be considered, and a blood culture and leucocyte count should be done with a view of excluding this condition.

In at least four instances I have seen a *scarlatiniform rash* so closely resembling the rash of scarlet fever that very careful examination was required to decide that we were not dealing with a case of the latter disease. The rash, however, was more markedly patchy in distribution, evanescent and recurrent, and in some cases irritating; and the appearance of the patient's face and throat, together with the absence of the rapid pulse and strawberry tongue of scarlet fever, and also the comparatively low temperature at the time of appearance of the rash, enabled us to exclude the existence of this disease.

One patient, however, who gave a history of another man in his hut having had a rash, was transferred to an isolation hospital, but at a post-mortem examination made after his death from broncho-pneumonia a few days later the appearances presented were precisely those found in other cases of deaths from this influenzal form of pneumonia. The tongue of these influenzal cases is almost invariably dirty and furred, and in some cases there is an offensive, almost pathognomonic, odour of the breath.

The onset of *pyrexia* is very sudden, the temperature rapidly rising to 103° or higher. The duration of pyrexia is generally short, and under appropriate treatment and rest in bed the temperature rapidly falls about the third or fifth day to normal, thereafter probably rising to about 99° on the following evening, but within a week from the date of onset remaining below normal. If the pyrexia persists after the first week it is probable that either some pulmonary complication is present or that the diagnosis of influenza must be reconsidered, special attention being given to the possibility of the case being one of the enteric group.

The *pains* of this type of influenza are very characteristic; they are referred almost invariably to the muscles and soft tissues, and to a less extent to the joints rather than to the bones themselves. The most common sites of pain are in the muscles of the thighs and calves, the lumbar muscles and muscles of the back of the neck, and to a less extent the knees and ankle joints. The headache of influenza has already been referred to. In a very large proportion of cases it is frontal, in some cases occipital, and in a few referred to the vertex. The headache is in some cases very persistent, continuing for some days after the patient's temperature has fallen to normal, and is almost invariably extremely severe at first. The pains differ considerably from those of trench fever; in the latter disease the pains are most frequently referred to the bones themselves, particularly to the inner and outer edge of the tibiæ, and the bones are often very tender to palpation. The acute nocturnal exacerbations of the pains are more marked in trench fever than in influenza.

The pains of the abdominal group of influenza cases may arouse the suspicion of appendicitis. They are, however, more general, although frequently referred to the lower part of the abdomen. There is, however, little or no muscular rigidity, and the tenderness to deep palpation is not more marked in the right iliac region than in the left. The pain does not tend to become localised and the fever and pulse-rate do not indicate a progressive lesion.

There is a group of cases admitted with occipital headache and pain in the neck closely resembling cases of cerebro-spinal meningitis, but, as a rule, the rigidity of the neck is much less marked. In some of these cases the diagnosis is rendered more puzzling by the presence of what I may describe as a "spurious" Kernig's sign—i.e., it is impossible to say that Kernig's sign is absent, although it is more of the nature of a "clasp-knife rigidity" than a true Kernig's sign. Lumbar puncture may, however, be necessary to exclude cerebro-spinal meningitis, when, although the fluid may escape under high pressure it is clear and does not present the characteristic cytological features of the latter disease.

A *blood count* is of great value in helping to discriminate between the various causes of P.U.O. The trench fevers are usually accompanied by a moderate leucocytosis. Malaria, malignant endocarditis, scarlet fever, and cerebro-spinal fever, as a rule, show a marked leucocytosis. The enteric group is more usually characterised by a leucopenia. In "Spanish influenza" the leucocyte count usually varies between 5000 and 9000 per c.mm.

Very few cases of influenza show a true relapse, and the occurrence of pyrexia relapsing within a few days in a supposed case of influenza suggests the probability of the case being one of trench fever.

I regret that the few cases in which the urine has been examined prevent me from making any observation on this point. I have not touched on the bacteriology of these cases, for at present this aspect of the disease is *sub judice*.

Tabular Summary.

Appended are two tables: (1) a summary of the principal diagnostic points of the commoner causes of P.U.O.; (2) an analysis of the post-mortem findings in 30 cases diagnosed as "influenza" at a hospital base in France during June and July, 1918. For these latter tables and for other valuable suggestions I am much indebted to Captain T. W. G. Shore, R.A.M.C., pathologist to —— Administrative District, France.

TABLE I.—*Summary of the Principal Diagnostic Points of the Commoner Causes of P.U.O.*

Disease.	Mode of onset.	Fever.	Characteristics of pain.	Bacteriological examination.	Blood count.
Malaria.	Sudden	Intermittent as a rule.	—	Parasites in blood.	Leucocytosis.
Coli bacilluria.	Gradual	Prolonged and irregular.	Renal, vesical, or ureteric tenderness.	*B. coli* in urine.	—
Malignant endocarditis.	Gradual or sudden	Constant, prolonged, and irregular.	—	Blood culture may be positive.	High leucocytosis.
Trench fevers.	Sudden	Frequent relapses.	Pains in bones, especially shins.*	—	Mod. leucocytosis.
"Spanish influenza."	Very sudden	Short, rarely relapses, subsides by crisis.	Pain in head, usually frontal and back.†	—	Mod. leucopenia.
Influenza.	Very sudden	Short, subsides by crisis, less acute.	Pain specially in head and back.	Influenza bacilli in sputum.	Leucopenia.
Enteric group.	Gradual	Prolonged, gradual onset, subsides by lysis.	Vague; general.	Widal's reaction.	Leucopenia.
Cerebro-spinal fever.	Sudden	High and irregular.	Headache, usually occipital.	C.-s. fluid cloudy, &c.	High leucocytosis.

* Worse at night; shins tender.

† Also pains in legs, usually muscular, in calves and thighs, continuous all day.

TABLE II.—*Summary of Post-mortem Findings in 30 Cases Diagnosed "Influenza."*

More or less dilatation of heart constant.		
Myocarditis	in 20 out of 30.	
Endocarditis of mitral valves	.. 2 ..	
Pleurisy	.. 26 ..	
Pleural effusion	.. 8 ..	(Generally purulent).
Broncho-pneumonia	.. 27 ..	Broncho-pneumonia the rule. Often confluent, less so in later cases.
Lobar pneumonia	.. 1 ..	
Confluent broncho-pneumonia	.. 11 ..	
Miliary pneumonia	.. 4 ..	Miliary or shotty broncho-pneumonia in later cases.
Pus in bronchioles	.. 12 ..	Resembling purulent bronchitis, commoner in later cases.

Collapse when present along vertebral border of lung. Emphysema common anteriorly.

Nephritis { Acute in 7 ... ... Kidney as a rule pale—"toxic." Chronic in 2 ... ... Suppression of urine in one case.

Jaundice in 2.
Spleen generally enlarged.
Pulmonary glands always enlarged.
Liver generally shows some fat.
Pulmonary abscess in 3.
Abscess in brain in 1.
Old tubercle in 7. (Much higher than average in B.E.F.)

OBSERVATIONS ON A CASE OF "LOOSE BODY" IN KNEE-JOINT.

BY PAUL BERNARD ROTH, F.R.C.S. ENG.

Origin of "Loose Bodies."

"Loose bodies" may occur as a result of (1) chronic hypertrophic osteo-arthritis, (2) trauma, (3) chondrification or ossification taking place in hypertrophied joint villi, or (4) the process known as osteo-chondritis dissecans. In the present case, in spite of the history of trauma, the osteophytic formations point strongly to the first of these conditions as the determining cause. It is therefore highly probable that this patient will at some future time again suffer from other "loose bodies" in her joint.

Notes of Case.

Patient, aged 33, was first seen at hospital on Oct. 30th, 1917. Six months previously when kneeling she tried to get up quickly, but could not straighten her right knee because of great pain in it. This pain lasted for a week or ten days, and then gradually disappeared and the knee got well. Since then she has had every other week attacks of sudden severe pain in the knee and inability to straighten it.

On examination there was found to be marked creaking accompanying movement in both knees and slight lipping at the articular margins. The right knee could be completely straightened. To test her story she was told to go home and return directly she had another attack. A week later she stated that she had had another attack on the previous day. On examination there was slight puffiness of the knee, it was hotter than the other, and it could not be completely extended. Radiograms taken the following day by Dr. W. Ironside Bruce were reported on by him as follows: "There is present an arthritis of the knee-joint with + osteophytic formation. There is also present a very nice example of 'loose body' which at the time of examination lies in the *posterior part* of the joint."

On further questioning patient remembered that seven years ago she fell with right knee doubled up; she could not get up by herself, was carried on to a sofa, and had to remain a fortnight in bed, the knee being very much swollen; she did not call in a doctor. Since then the knee had been quite well until May, 1917, when the present trouble began.

Operation (Nov. 19th, 1917).—With the knee lying slightly flexed over a sand-bag an anterior median vertical incision six inches long, with its centre opposite centre of patella, was made through the skin and subcutaneous tissues and deepened until the quadriceps extensor tendon, the patella, and the ligamentum patellæ were reached. Sterile towels were clipped to the two edges of the wound with Kocher's tissue forceps and the skin completely shut off. The patella was next split vertically into two lateral halves with chisel and mallet. With a fresh scalpel the line of cleavage was extended up into the extensor tendon and downwards into the ligamentum patellæ, so that these structures also were bisected mesially into two lateral halves. The two halves of the patella were drawn apart with blunt retractors and the knee simultaneously flexed to a right angle, the foot being kept in contact with the table. The "loose body" was at once seen lying *in front of* the anterior crucial ligament; it was removed with forceps, the knee was straightened, the quadriceps tendon and ligamentum patellæ sutured with No. 4 continuous catgut, and the skin closed with Michel's clips.

Patient made an uninterrupted recovery, no splint of any kind being used during convalescence, and a month later was again radiographed. The radiograms again showed the "loose body" present, and the report stated it to be so. On very careful study of the first radiograms I made out, lying above the shadow of what we had considered in the lateral view to be the "loose body," another much fainter shadow; and in the second radiograms this faint shadow was absent. It was, therefore, clear that originally there were two "loose bodies" present, one of which had been removed, or that the remaining shadow was due to a sesamoid bone in the gastrocnemius.

Remarks.

The following points present themselves for observation.

1. *Route adopted for operating.*—I believe this median patellar route to be the ideal one for operating on all internal disorders of the knee-joint. If used with strict adherence to the rules adopted by Lane in plating bone the risk of sepsis is nil, a splendid view is obtained of the joint interior, and no injury is done to the mechanical power of the joint. Further information as to its great utility may be obtained from the writings of Sir Robert Jones, Mr. E. M. Corner, and from my own paper,[1] in which has been given a list of references.

2. *Differential diagnosis of "loose body" from sesamoid bone in outer head of gastrocnemius.*—I have not been able to find any research done on this subject, and until this case had never heard of any difficulty in coming to a correct decision. It may be taken as a general rule, however, that a sesamoid bone when present is oval in shape when seen from the side with its long axis placed vertically; that it is as dense to the X rays as the densest parts of the femur, tibia, and patella; and that it is situated behind a line joining the most posterior portions of the tibial head and femoral condyles as seen in the lateral radiographic view and well to the outer side of the midline in the antero-posterior view. A "loose body," on the other hand, may be of any irregularly rounded shape, is not as dense to the X rays as the densest parts of the other bones, and may be anywhere in the joint cavity.

In the present case the shadow remaining after operation is circular when seen in lateral view, is as dense as the other bones, is situated almost entirely in front of the line joining the two bones, and in the antero-posterior view shows up quite plainly on the inner side of the midline of the joint—that is, the evidence is largely in favour of it being due to a second "loose body." If such it be, it is causing no symptoms, for since operation the patient has been entirely relieved, and when last seen in April the knee had entirely ceased to bother her.

3. *Passage of "loose body" from back to front of joint.*—The shadow of the "loose body" in the first radiogram showed that it lay in the posterior part of the joint, but at operation it lay in front of the anterior crucial ligament. As I have met with the same phenomenon before, and as I know of one joint surgeon who maintains he can bring a "loose body" from the back of the joint to the front at will, I am led to the conclusion that the simple manipulation of bending the knee in the manner described—the patient lying on the back and the foot being kept in contact with the table—is sufficient to press the "loose body" out of its position at the back and roll it forward to the front. This matter could be easily determined by radiograms taken before and after manipulation, but I have not since this case come across another suitable one. If this be so, in future it may not always be necessary to split the patella to get out the "loose body"; all that may be required will be to split the ligamentum patellæ and extract the "loose body" lying immediately beneath it.

Harley-street, W.

[1] Clinical Journal, March, 1918.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The opening meeting will be held on Friday, Oct. 4th, at 8.30 P.M., in the Society's Rooms, West London Hospital, when the new President, Lieutenant-Colonel E. M. Wilson, C.B., C.M.G., D.S.O., R.A.M.C., will be inducted and the presentation of the Keetley Memorial Medal will be made to the retiring president, Dr. A. J. Rice-Oxley. The Presidential Address will be on the subject of "Ancient Physic." Communications should be made to the honorary secretaries, Dr. H. H. Sanguinetti and Dr. J. F. Halls Dally, and subscriptions paid to the honorary treasurer, Dr. T. Gunton Alderton.

MENINGITIS CAUSED BY THE *MICROCOCCUS FLAVUS*.

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OF the Gram-negative cocci inhabiting the naso-pharynx the meningococcus only has so far been recognised as capable of producing meningitis. The possibility of some other member of the group giving rise to meningitis cannot be denied, but hitherto no sufficient evidence has been forthcoming. In a case of cerebro-spinal fever recorded by McIntosh and Bullock[1] the meningococcus was isolated from the cerebro-spinal fluid at the first lumbar puncture, and a mixture of this organism with the *Micrococcus flavus* at the second lumbar puncture, but all subsequent punctures yielded pure cultures of the meningococcus alone. In the case now recorded the meningitis was caused by infection of the meninges by the *Micrococcus flavus* alone.

The patient, a miner, aged 50 years,[2] was admitted to hospital for head injuries caused by a fall of coal. On admission a large scalp wound was found in the upper occipital region and some bruising about the chin. The nose was broken and there was much blackening about both eyes. Two days after admission slight delirium occurred and persisted for three days. This was followed by loss of consciousness for one day, and death ensued the next morning.

At the necropsy some atheroma was found in the coronary arteries, and considerable anthracosis and hypostatic œdema in the lungs; the liver and kidneys showed cloudy swelling, and the spleen was congested and of the "septic type," otherwise the thoracic and abdominal organs were healthy. There was well-marked purulent meningitis at the base of the brain, passing backwards round the medulla and cerebellum and forwards over the roots of the optic nerves; it extended upwards over the convexity, but the exudate was much less abundant here than at the base. The lateral ventricles contained thin, purulent fluid and the fourth ventricle thick pus. There was a fracture of the cribriform plate of the ethmoid which extended across the right orbital plate. Pus was present, extradurally, on the upper surface of the cribriform plate, but no tear in the dura mater could be made out. The nasal bones were broken, but there was no other fracture and no gross injury to the brain.

Films made from the purulent meningeal exudate at the base of the brain showed polymorph pus cells, a few large mononuclears, and Gram-negative diplococci, intra- and extra-cellular, in considerable numbers. The films were indistinguishable from those obtained in an acute case of cerebro-spinal fever, and provisionally it was thought that the organism was the meningococcus. Cultures were made on serum agar, and after 24 hours' incubation a well-marked growth was obtained. The colonies were well defined, fairly clear and translucent, but with the very faintest tinge of yellow in the centre. Although a little larger than meningococcal colonies at this stage they are not unlike them, the tinge of colour in the centre resembling somewhat the granularity frequently seen in their centres. After incubation for 48 hours, however, the yellowish colour was distinct and the growth abundant and confluent. Later the growth became more profuse and paint-like. The fermentation reactions were tested on glucose, maltose, and saccharose, in litmus-tinted serum agar. Acid was produced on all three sugars, thus confirming the diagnosis of *Micrococcus flavus*. Distinct acid production was observed on the maltose within 24 hours, but the change on glucose was only slight in this time. In 48 hours, however, both showed the reaction well marked. On saccharose slight acid production was observed only after 48 hours, and further incubation was necessary before the reaction became distinct. The organism was easily emulsified in saline, and did not agglutinate with any of Gordon's type meningococcal sera.

The *Micrococcus flavus* is a common inhabitant of the naso-pharynx, and has hitherto been regarded as a more or less harmless saprophyte, but the present case demonstrates its pathogenicity under suitable conditions. Apparently the infection passed from the nose through the fracture in the cribriform plate to its upper surface and thence to the meninges, although no rupture of the dura mater was obvious.

[1] Med. Res. Com., Spec. Rep. No. 2, 1916.
[2] G.R I. Path. Rep. No. 9146.

CASES OF CEREBRO-SPINAL FEVER

DEFINITELY TRACEABLE TO INFECTION BY A PARTICULAR CARRIER.

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CAN any case of cerebro-spinal meningitis be definitely traced to one particular carrier? As this question has recently been answered in the negative by several authorities, such as Staff Surgeon G. P. Adshead, R.N.,[1] and apparently by German medical opinion, as summarised by Galambos,[2] some cases investigated in the London District Cerebro-spinal Fever Laboratory may be of interest as furnishing an affirmative reply to the same question.

The frequent changes of position and population in naval and military sleeping quarters tend to make investigation of purely military cases difficult and complicated, but when the infection of relatives by soldier carriers returning on leave is investigated we are on firmer ground.

The investigations have two main practical difficulties:—

First, conclusive evidence of infection being derived from the visiting soldier demands (*inter alia*) a correspondence in type between the meningococcus attacking the patient and that carried by the soldier. The patient being nearly always removed to a civil hospital his type of meningococcus is seldom determined, and so an important link in the chain of evidence is usually wanting.

A second difficulty is the length of time (usually at least 14 days) which elapses before the soldier is examined, and in this time many temporary carriers will clear up.

Record of Cases.

The following two cases are particularly interesting, as in them the first condition is fulfilled. The patient's type of meningococcus is known, and is the same as that carried by the soldier.

CASE 1.—This case was that of a soldier, a recruit, who was sent to a depôt where there had been a recent outbreak of cerebro-spinal fever, accompanied by high carrier rates (70 per cent. of both cases and carriers harbouring Type II. meningococcus). He was there for five weeks, and on May 4th (the carrier rate being at this date known to be over 20 per cent.) he went home on short week-end leave and slept two nights in the same room as his only child. On May 8th the boy developed the disease, was admitted to St. Bartholomew's Hospital, and died there; the meningococcus grown from his cerebro-spinal fluid was Type II. On May 12th the father was swabbed and was found to be a carrier of Type II.

CASE 2.—This case was that of a wounded soldier awaiting discharge and employed in the R.A.F. He did not sleep at home, but being within an easy distance went home every day for a period of a week. Four days after this his baby, aged 10 months, developed the disease, was admitted to St. Bartholomew's Hospital, and died there. The meningococcus in the child's fluid was grown and agglutinated by the bacteriologist to the hospital, and found to be Type I. The father was examined at this laboratory some days later and was found to be carrying Type I.

Unless we make the very unlikely assumption that in these cases the children infected their soldier parents these cases appear sufficiently conclusive.

Now to recite some cases in which, although the type of meningococcus infecting the patient was unknown, yet the other evidence is, in my opinion, sufficient.

CASE 3.—In this case the soldier returned on leave from France on Dec. 23rd, 1917. On Boxing Day he was married, and the next day he and his wife went to his father's farm for their honeymoon. On Dec. 30th his little brother, aged nine (who was not sleeping in the same room) fell ill. The soldier returned to London on the 31st, and the boy's illness proving to be cerebro-spinal fever, the soldier was examined at the laboratory on Jan. 4th, 1918. His swab furnished an almost pure culture of meningococcus (Type III.). He has since proved a carrier of persistent character.

One cannot help feeling that the bride had a providential escape.

CASE 4.—A nurse, nursing in a hospital in a large military centre where there had been a severe outbreak of cerebro-spinal fever and where the carrier-rate had been very high, went home on week-end leave, and slept in the same bed with a lady. This lady developed the disease four days later and died from it. Eight days after the contact the nurse was examined and found to be a carrier of Type II., the prevalent type of the garrison and of the hospital where she nursed.

It is just possible, of course, that the nurse was infected by the patient, but the converse is almost certain.

CASE 5, a soldier, was in hospital in London with a broken arm. He was allowed to go home to tea on three successive days, August 26th, 27th, and 28th, 1917. His child developed cerebro-spinal fever on Sept. 1st. The soldier was not examined until Sept. 26th, when he was found to be a carrier of Type I. meningococcus.

[1] Special Report, Series No. 17, Medical Research Committee, p. 90.
[2] Medical Supplement of the Foreign Press, Medical Research Committee, July 1st, 1918, p. 214.

CASE 6, a soldier, was working in a Labour Company in London and was sleeping at home every night in the same room with his 12-months'-old baby. The baby sickened of cerebro-spinal fever and died, and 12 days later the father was found on examination to yield an almost pure culture of meningococcus Type I. He was a chronic carrier, proved very resistant to treatment, and had also a chronic cough.

CASE 7, a soldier, came home on leave from France on March 1st. His only daughter, aged 12, sickened on March 5th, and was thought to have measles. On the 16th the case, which proved fatal, was notified as one of cerebro-spinal fever, and on the 18th the soldier was examined and found to be a carrier, of a somewhat chronic type, of Type II. meningococcus.

Remarks.

I have here excluded any case in which the evidence of contact or time appeared at all ambiguous.

During the 12 months ending June 30th, 1918, 33 soldiers have been examined in this laboratory in connexion with cases of cerebro-spinal fever occurring in relatives.

In 6 cases there was no evidence of recent contact with the patient before the onset, the soldier having been summoned in consequence of the dangerous illness of the relative. These 6 cases may therefore be dismissed from this inquiry.

In 9 out of the remaining 27 cases (or in 33 per cent.) the soldier proved a carrier.

Note.—The average military carrier-rate shown by 9000 "non-contact" examinations by me in the same period is 9·2 per cent., and that of 375 ordinary military "contact" examinations is 9 per cent.

In one other case the soldier was probably a carrier, but the agglutination result was not absolutely definite.

In 3 of the cases in which the soldier proved to be a carrier the other evidence was ambiguous—i.e., the soldier might have been infected by the patient. In one ambiguous case, for example, the soldier's wife who contracted the disease was the matron of a hospital where some convalescent C.-S.F. patients had been recently received. The soldier husband, who had been home on week-end leave just previous to the date of his wife's onset, was found to be a very chronic and abundant carrier (Type II.). He came from a depôt known to have a high carrier-rate. Who can decide whether he infected his wife or if he were infected by her, or if it were but a coincidence?

Considering the foregoing cases in conjunction with those of Flack,[3] in my opinion we may fairly answer the question in the affirmative.

[3] Special Report Series, No. 3, Medical Research Committee, p. 58.

Reviews and Notices of Books.

Religio Grammatici: The Religion of a Man of Letters. By GILBERT MURRAY, LL.D., D.Litt., F.B.A., Regius Professor of Greek in the University of Oxford. London: George Allen and Unwin, Ltd. 1918. Pp. 47. Price 1*s.* net.—"Religio Grammatici" is the title of a Presidential Address to the Classical Association, delivered on Jan. 8th, 1918, by Sir Gilbert Murray, and it is an earnest and reasoned defence of the study of the past. The mere Present, he says,

"enslaves us most, narrows the range of our thought, cramps our capacities and lowers our standards."

As to the Future,

"You cannot study the future. You can only make conjectures about it, and the conjectures will not be much good unless you have in some way studied other places and other ages."

In material things we are far ahead of our forefathers,

"One may say roughly that material things are superseded, but spiritual things not."

Again,

"To search the past is not to go into prison. It is to escape out of prison, because it compels us to compare the ways of our own age with other ways."

The higher and more massive workings of our literature, says Professor Murray, from as far back as the days of Alfred, come from Palestine, Greece, and Rome, the Christian and classical tradition. We might add, as a gloss on this remark, that it is surely more than a coincidence that the "Sortes," that well known form of invocation of an oracular response, superstitious and vain though it may be, has been addressed to the choicest literature of three nations alone—namely, Homer, Virgil, and the Bible. The classics do retain a strange influence over even those whose reading does not generally lie in their direction. We came across a humorous recognition of this fact the other day in a modern novel:—

"On the day when the interviewer was expected he remained all day in his study, and put away books about Mr. Jorrocks, and threw down on the table his school copy of Virgil. ..... He imagined himself saying: 'I always find myself returning to the classics; there's nothing like them really, you know.' For some reason or other the interviewer never came."

Some of us, however, read the classics without the stimulus of an interviewer and find them full of wholesome doctrine necessary for these times. There is much talk about "peace by negotiation"; this was tried long ago, and the answer of the Allies is, *mutatis mutandis*, the same as that of Diomede, Iliad VII., 400:—

"Let no man now accept Alexandros' substance, neither Helen's self; known is it even to him that hath no wit at all, how that the issues of death hang already over the Trojans."

Or go forward some thousand years and see what Horace said in words which should be brought to the attention of every "pacifist" of the kind that asks for the peace that is no peace:—

"Qui perfidis se credidit hostibus,
* * * * *
Hic unde vitam sumeret inscius
Pacem duello miscuit."

The struggle is once more between Carthage and Rome, between a Carthage who, according to the poet's view, would enslave the world and a Rome who would set the nations free. And, finally, where can we find the aim of the League of Nations better set forth than in the words of the Prophet Micah:—

"But in the last days it shall come to pass that ..... many nations shall come and say, Come and let us go up to the mountain of the Lord and to the house of the God of Jacob; and he will teach us his ways and we will walk in his paths. ..... And he shall judge among many people, and rebuke strong nations afar off ..... nation shall not lift up a sword against nation, neither shall they learn war any more. But they shall sit every man under his vine and under his fig tree, and none shall make them afraid."

These are the lessons of the past, and they are true to-day.

Thyrea and Other Sonnets. By JOHN FERGUSON. Second edition. London: Andrew Melrose, Ltd. Pp. 44. Price 1*s.* net.—In this little book Mr. John Ferguson shows himself to be a considerable master of a difficult art, for he writes sonnets with ease and distinction. And more than that, he is a thinker of fine things, who can use slang so appositely that while his colloquial vocabulary adds realism to the treatment it does not detract from the dignity of the theme. Sonnet No. V., entitled "On Tour," which appeared in THE LANCET, is a good example of this power, which W. E. Henley possessed in such a marked manner. In fact, Mr. Ferguson in his hospital sonnets has fairly earned comparison with Henley.

JOURNALS.

British Journal of Children's Diseases. Vol. XV. July-September. Edited by J. D. ROLLESTON, M.D.—Dr. E. Stolkind and Dr. A. Lorey, of Moscow, in their article on paratyphoid fever in children, adopt the classification proposed by Stolkind some years ago into the typhoid form, the gastro-intestinal form, the choleraic form, and the respiratory or influenzal form. Illustrative cases of each group are recorded, as well as two examples of local infection—viz., pyelitis due to the paratyphoid B bacillus. The etiology, morbid anatomy, symptomatology, diagnosis, and treatment are discussed, and a bibliography of 134 references is appended.—Mr. John Priestley and Dr. Barbara Richardson, school medical inspectors of the Staffordshire County Council, contribute a paper on Tuberculosis as seen in Public Elementary Schools, based on the study of cases seen from the beginning of medical inspection in 1908 to 1915. Out of a total of 42,471 children inspected, 283 cases of tuberculosis of all kinds were found; 87 of these presented pulmonary tuberculosis, the disease being usually of the quiescent or latent type. 184 showed evidence of glandular tuberculosis; the cervical glands were affected in all, and in 2 the axillary glands as well. Forty-nine showed tuberculosis of the bones or joints, which was chiefly in a quiescent state with deformity resulting from previous disease, and 13 had abdominal or cutaneous tuberculosis. The following conclusions are drawn from a comparison of the tuberculous with the average child:—

1. The weight to height ratio gives little or no help in the diagnosis of tuberculosis in children.
2. A previous attack of any of the common infectious illnesses of children does not, in general, seem to predispose to subsequent attacks of tuberculosis.

3. There is no evidence that more cases of tuberculosis arise among the badly-environed children in Staffordshire than among the better environed, but this may mean that the former are, after all, not very badly off.

4. The writers' figures give no support to the belief that enlarged tonsils and adenoids, as indicated by mouth breathing, *materially* favour the development of tuberculosis.

5. There is no evidence that caries of teeth to any appreciable extent leads to tuberculosis or favours its development.

6. There is evidence that cervical glands are enlarged in tuberculous children much more frequently than the average, not only in glandular tuberculosis, but also in pulmonary and other kinds.

7. There is no evidence that tuberculosis favours, or is favoured by, heart affections.

8. There is evidence that the tuberculous have fewer dull and backward among them than the average group, and, on the other hand, that they yield a larger proportion of mentally deficient cases.

9. There is evidence that the tuberculous group yields an unduly large proportion of cases of defective sight and eye diseases, but the difference is not marked. A similar and more marked difference is noticed in ear diseases.

10. Anæmia is very prevalent among the tuberculous, and nutrition is markedly depressed.

—In her paper on External Eye Diseases in Elementary School Children Dr. Barbara Richardson discusses (1) the incidence of these diseases according to age and sex; (2) the particular eye diseases found and their relative numbers; (3) the effect of the child's environment and its constitution on the incidence of the disease; (4) the clinical appearance of the various eye diseases as seen by the school doctor; (5) the relationship of defective vision to blepharitis; (6) the relationship of the common infectious diseases to external eye diseases; (7) the relationship of skin diseases to external eye diseases; (8) the relationship of enlarged tonsils and adenoids to external eye diseases.—Captain Alex. Mitchell, in a paper on Lacerated and Infected Joints in Children, records three cases illustrative of the modern method of dealing with such conditions. The main points are complete immobilisation, along with extension, careful excision of all infected tissue, removal of foreign bodies, and washing out all débris and clots with a weak antiseptic, or preferably with saline solution, which does not cause any irritation of the synovial membrane. This is followed by immediate closure of the synovial membrane, or when infection of the synovial cavity is evident by placing small drainage tubes down to the openings in the synovial membrane and fixing them, so that they do not project into the joint cavity. The rest of the wound is left unsutured or dressed with salt pack or Bipp, which should not be disturbed until the synovial wound has had time to heal. Immobilisation must be maintained until all fear of lighting up the infection by movement is past.—Dr. George Pernet records two cases of partial sclerema neonatorum. Although syphilis could be excluded, both cases were successfully treated with mercury, hydrarg. c. creta gr. i. t.d.s. being used in both cases, and ung. hydrarg. in one case locally as well.—Mr. Hunter Tod relates a case of multiple papillomata of the larynx removed by operation (suspension method) after tracheotomy in a boy aged 4 years. Five weeks later death took place from acute membranous tracheitis and bronchitis of streptococcal origin.—The abstracts from current literature in this issue of the journal are devoted to acute infectious diseases.

The Indian Journal of Medical Research. Vol. V., No. 4.—In this number there are two contributions on the subject of kala-azar, the first of which constitutes the fourth instalment of a series of researches on the etiology of this disease carried out jointly by Lieutenant-Colonel J. W. Cornwall and T. Kesava Menon, of the Pasteur Institute for Southern India, Coonoor. Their three previous papers have already been published in former numbers of the *Journal*. They had shown that the bed bug cannot regurgitate the contents of its stomach in the act of feeding, and that therefore it cannot transmit kala-azar, or oriental sore, by its bite. The present investigations deal with the possibility of the contents of the bed bug's rectum containing the infection of the disease. The results, however, have proved negative. Although pure subcultures of the flagellates of *L. donovani* can readily be obtained by inoculating N.N.N. tubes from the stomachs of infected bugs up to 10 days from the date of feed, no subcultures of the flagellates could be obtained from the rectal contents of the bugs from 3 to 33 days after an infected feed; nor could resistant forms be detected microscopically in the rectal contents of bugs infected by *L. donovani*. Kala-azar may perhaps be transmitted by the rupture of an infected bug on an excoriated skin, but so far no proof of this has been obtained.—The second paper is by Captain R. Knowles, of the Edward VII. Memorial Pasteur Institute, Shillong, and is entitled "Notes on Some Results in Kala-azar," in which the treatment of cases by intravenous injections of tartar emetic is discussed, and the conclusion reached that this is at the present time the best of all methods for treating this grave malady. Captain Knowles also deals with the possibility that some common intestinal parasites, such as ankylostomes, may be concerned in the hereditary transmission of the flagellates, or some developmental form of *L. donovani*. Further study of this subject is suggested.—Lieutenant-Colonel W. Glen Liston and Dr. M. B. Soparkar contribute a joint article on Bilharziosis Among Animals in India, in which the life cycle of *Schistosomum spindalis* is described.—Some observations on the Biochemistry of Post-choleraic Uræmia are supplied by Captain J. A. Shorten, to which is appended a note by Assistant Surgeon J. Makherji on the action of liquor calcis on comma vibrios, his conclusion being that as this fluid is distinctly inimical to the growth of these organisms it would help to check their growth in the intestines of the patient if liquor calcis were administered in large quantities.—Dr. Baini Prashad, D.Sc., assistant professor of zoology, Lahore, furnishes two papers on the Anopheles Mosquito, both being copiously illustrated by plates. In the first he describes in detail the constitution of the wings and thorax of the insect, and in the second he gives a description of the development of the dorsal series of thoracic imaginal buds of this mosquito, and supplies certain observations on the phylogeny of these insects.—The concluding paper of this number is contributed jointly by Dr. Karuna K. Chatterji and Dr. Charubrata Ray, of the Calcutta Medical College, and is entitled "Observations on Margosic Acid and its Salts, and their Use in Cases of Syphilis and Skin Diseases," with several coloured plates. Margosic acid is derived from the margosa tree, the Bengali *nim* or the Hindu *nimb*, the virtues of which have long been recognised in India for the prevention of fevers, leprosy, and other diseases.—As this number completes the fifth volume of the *Journal*, indices of authors and of subjects are appended.

The Military Surgeon.—In the issue for August it is shown that when the United States began to build up its great army it soon became obvious that very careful but rapid examinations must be made of all men soon after entry, in order that those infected with tubercle might be excluded, and excluded before they became chargeable to the public as having contracted the disease in the service. Special boards of examiners were accordingly set up, a standard scheme of examination devised by Colonel Bushnell was directed to be used, and the new soldiers were examined. After a million and a quarter had passed before the boards it was found that about 11,000 (0·783 per cent.) were infected and had to be discharged. If these men had been allowed to continue at their strenuous military training many would have broken down badly; from that risk they were saved, and any who did get through to France and had to be invalided from there must have cost the country, uselessly, £1000 apiece. So the advantage of the boards to the men themselves, to the Army, and to the public was very great. For their treatment the United States had already in the summer 1300 beds available and will have 6000 by Christmas. Of these beds 550 are to be used in a training school in which physicians are being specially trained as examiners for tuberculosis and to take posts in sanatoria. It is recognised that rest is the great need of the tuberculous patient, so he is sent at once to a sanatorium, and is given no leave until he is strong enough to withstand the fatigue of a visit to his home and friends, and in the sanatoria treatment is standardised so that patients may not be confused by varying directions given by different medical officers. A very interesting article on the organisation of one of these tuberculosis examining boards and on its work is given by Surgeon Lawrason Brown, U.S. Army, and Major J. H. Pratt, M.R.C. It is noted that, commencing daily at 8 A.M. and 1 P.M., it is easy for each member to examine 40 or 50 men in each session of two or three hours. This paper will well repay perusal.—Major Eric P. Quain and Captain Carl Eggers, M.R.C., U.S. Army, report having seen a considerable number of soldiers complaining of painful abdominal scars. Many of the complaints were exaggerated in the hope that the condition might excuse them from service. Yet none have been discharged; seven were operated on and have returned to duty. These seven could be arranged in four classes: (1) Adhesions of gut and omentum to parietal peritoneum beneath the scar;' (2) submuscular herniæ of omentum through peritoneum incompletely closed; (3) thin scars (treated by excision); and (4) retained appendix following abscess drainage (treated by removal). This is a valuable paper.—There is also a most appreciative account of the orthopædic hospital for disabled soldiers at St. Helens in Lancashire.—As we read this number of the *Military Surgeon* it is constantly brought before us how great a work was the organising of the U.S. National Army, in how wise a scientific spirit it was undertaken, and what an advantage it was that they were not so overwhelmed as France and England with the suddenness of the war.

LONDON SCHOOL OF MEDICINE FOR WOMEN.—The inaugural address for the session 1918–19 will be delivered on Tuesday, Oct. 1st, at 3.30 P.M., by Miss A. Maude Royden (assistant preacher at the City Temple), who has taken as her subject "Revolutionary Thought."

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 28, 1918.

The Attributes of the Successful Flying Officer.

"IF men were meant to fly they would have been given wings." A few years ago such a remark was common enough, especially during the period when the pioneers of flying were making their fundamental experiments. Now, as a result of their successful efforts, man is able to fly, and flying is an everyday performance. It is true that man has not developed wings, but he has provided himself with a motor and wings. These are accessories to himself, but nevertheless, in flying he and his machine become, to all intents and purposes, a single entity. But that this entity is an artificial one is shown by the fact that, although flying has become possible, not all men can acquire the art of flying. To do this certain physiological attributes are especially necessary. In addition, if not perhaps even more important, is a psychological attribute—namely, the flying temperament; and to identify this temperament, and give it full play, is one of the difficult tasks before the executive, medical and other, of the Royal Air Force.

From a strictly physiological point of view it is obvious that, since man has added to himself wings and a motor, the most important factor in the art of flying is the nervous control and coördination of the reflexes necessary for the successful management of these accessory parts. An insight into these reflexes and their control is easily afforded by getting into a stationary machine and studying the fundamental effector movements ("effector responses") necessary to flying. The combination of hand and foot movement is by no means familiar to the average person, and while attention is directed to one movement, the other movement, equally important, is for the time being neglected. Thus when the attention is directed to the hand movement, the foot movement is forgotten for the time being, and becomes incoördinate. This is brought out even more effectively if, instead of being performed in a stationary stable machine, the movements are tried in an unstable apparatus which responds to each movement of the joystick and rudder. In these circumstances it is quickly realised that it is a matter of very great difficulty to maintain by appropriate arm and leg movements an even keel while in a state of unstable equilibrium. In practically no other acquired accomplishment has man to keep so many groups of antagonistic muscles in a state of "static" wakefulness, or to perform such a variety of constant coördinated leg and arm movements. It is for this reason that the acquiring of the art of flying, even in the apt pupil, is a matter of hours and not of minutes. For this reason also the period of training for flying is relatively long; time is necessary before the essential movements in flying can develop into more or less subconscious reflexes. It is certain that the man who has not the power of accurately coördinating his arm and leg movements will be deemed "ham-handed" or "heavy-footed," and will be held unable to acquire the art of flying. It is because of the importance of the delicately coördinated effector responses that great value is attached to a history of proficiency in sport in the selection of aviators. While a history of sport is of great importance, even greater is a history, if it can be ascertained, of acquiring a proficiency in sport easily. In other words, the likely man will have shown himself an adept at acquiring rapidly a new series of reflex acts.

On the sensory side of the flying reflex arcs it is necessary that the sense of vision be good and that the subject be possessed of a good "eye," wherefore great attention is paid in all the Allied countries to the determination of the time of the experimental visual reflex, especially in the selection of scout pilots. Again, the auditory sense is of considerable importance, especially in the detection of any mechanical defect in the running of the engine, and also because the airman obtains much information as to the position of his machine by the singing of the wind through the wires. Considerable divergence of opinion exists as to the part played by afferent impulses from the eye, kinæsthetic sensibility, and the vestibular mechanism. In regard to the last, it is frequently argued that since the vestibular mechanism is especially developed in birds, it is important that men in whom the mechanism is functioning especially well should be selected for aviation. True as this may appear at first sight, the fact must not be overlooked that, regarding the man and his machine as a single entity, the accessory parts added to man have, to a considerable extent, their own sense of balance. In other words, it must not be overlooked that most modern machines are possessed of an appreciable degree of inherent stability, and on this account there is no reason to suppose that machines cannot be effectively flown by men in whom the vestibular mechanism is not especially sensitive. This may well be the case, since it is known that cutaneous sensations, especially those derived from contact with the seat and from alteration in the direction of wind pressure against the cheeks, play with most pilots a really important part in giving them an idea of their projection in space. The visual reflex also normally has a great share in the sense of balance; an especially capable pilot found by experiment that he was quite unable to fly when blindfolded. Early in his flying career the aviator must be able to divert his attention from the arm and leg movements of flying. It becomes necessary for the pilot to find his way across country, to read maps, to practise photography, bomb-dropping, and gunnery, during all of which actions the machines should be flown more or less subconsciously. Finally, having acquired such flying sense, it becomes the lot of many pilots to perform subconsciously difficult aerobatics, while acquiring what may be known as the "fighting sense." It must again be emphasised

here that in the acquisition of these adjuncts to flying, quick visual response is needed. It is for this reason that during ground training of the flying officer, and also throughout his career, especial attention should be given to those sports which aid in the acquisition of what may be termed "eye." Of especial value in this connexion is fencing, but other sports—such as boxing, tennis, and badminton—are of great service.

Thus far we have been dealing with the acquisition of the art of flying. It is necessary also to consider the strain imposed on the body by the effects of altitude. The increased speed of the machines, their heightened ceiling, the greater rapidity with which they climb have carried aerial warfare to such an altitude that the aviator has to be able to perform relatively heavy work in an atmosphere where the oxygen tension is diminished. Thus, superadded to the nervous strain involved in learning to fly is the physical one which falls particularly upon the respiratory and circulatory mechanisms. To understand this strain it should be explained that these mechanisms are called upon to function in an atmosphere of diminished oxygen, where if anything an increased supply is required; there is thus the tendency to the establishment of a vicious circle, a demand for increased oxygen-supply in an atmosphere in which it is progressively diminishing as the aeroplane mounts. Many of the symptoms from which airmen are liable to suffer are due to the strain thrown upon the respiratory and circulatory systems. For this reason the would-be aviator must start out upon his training with a particularly sound constitution, above all with flawless circulatory and respiratory mechanisms. On this account great care must be exercised in his selection for the service, while herein lies a reason for the elaborate and careful organisation of a medical branch of the Royal Air Force. The conditions of service in this Force are published on another page of THE LANCET, and the way in which they have been devised to secure for aviators the best scientific assistance will be recognised at once. Obviously, the flying officer after admission should keep himself fit by sports which train these circulatory and respiratory mechanisms. Such sports are football, boxing, and cross country running. But given all the right physiological attributes, a man will never fly successfully unless he possesses the flying temperament, and so we come back to the points with which we started. Generally speaking, the really successful aviator is possessed of the temperament so characteristic of the pioneers of flying. He is endowed with absolute fearlessness, love of sport and adventure, and a dogged determination to overcome difficulties, no matter how insuperable they appear.

But, as Captain T. S. RIPPON and Lieutenant E. G. MANUEL point out elsewhere in our present issue, the airmen of to-day are not necessarily super-men. On intimate acquaintance it is found that practically all aviators possess one most precious asset—cheerfulness. Successful flying officers are, as a rule, most cheery souls. In trying to particularise in regard to the temperament of the successful flying officer, it must be borne in mind that there are various forms of aerial work which by no means require the same form of temperament. Thus a temperament suitable for the pilot of a scout machine is not necessarily suitable for the pilot of a low-flying reconnaissance machine or even of a two-seater bomber. For this reason, therefore, it is not prudent to do more than generalise as to the characteristic attributes necessary for success in flying. An idea of these attributes is excellently portrayed in the article by Captain RIPPON and Lieutenant MANUEL. There is sometimes a tendency in the popular estimation to allow the work of the fighting scout who has "downed" many enemy aviators to obscure the value of the less pretentious activities of the flying officers engaged in bombing, photographic reconnaissance, and artillery observation. The men engaged in these forms of aerial work are serving the cause every whit as successfully, although from the public point of view they do not enjoy so spectacular a career. The flying officer must be an enthusiast. To achieve success every flying officer must be keen. Without the flying temperament the pupil will never learn to fly successfully; without the fighting temperament he will never make an efficient war-time pilot. Given equal machines, the British pilots should in the end outdo their German rivals, since, by virtue of heredity, education, and training they have acquired those characteristics which make for successful flying. They possess in great measure the all-essential cheerfulness of spirit; their love of sport has given them soundness of wind and limb, cultivated the "eye," and endowed them with the power of rapidly acquiring new reflexes. Above all, they have learned to go in and win, even against odds, to "stick it" when in, and never to leave a "pal" in the lurch. With such a spirit prevailing, and an adequate supply of material, there need be no apprehension as to the British position in the air.

Medical Men for Parliament.

THE names of several medical men have been mentioned recently in connexion with various Parliamentary constituencies, some having decided to stand out of individual wish, and others responding to invitation from responsible bodies. Their action is the expression of a widely held feeling among medical men that as medical science is to play a large part in the social reconstruction of the nation in the near future it is high time to determine what that part is to be. Not only is it high time, but, supposing that a general election is imminent, the date has probably gone by when any medical man can hope to be adopted as a party candidate for a seat, and the point is not without significance. Those members of our profession who attempt to enter the House of Commons in any election that may be near at hand will have to depend upon their individualities and reputations for their chances, together with such public recognition as can be

obtained from the fact that in the immediate future medicine will form a common ground upon which all plans of rehabilitation of ordinary life, and all schemes for the betterment of social conditions, must depend. Party organisation will, as a rule, not assist medical candidates.

As we have already announced, a meeting will be held at the Steinway Hall, Wigmore-street, London, on Tuesday, Oct. 1st, at 5.30 P.M., under the chairmanship of Sir HENRY MORRIS, the object being to secure the election of representative medical men to the House of Commons, so that expert advice may be available on vital questions concerning national health. All members of the medical profession are invited to attend this meeting, which is designed to support the view that medical men are wanted in the legislature, not to speak for the medical profession, but to make clear to those who frame our laws the bearing that the various measures may have upon the prevention and the spread of disease, and especially upon the general physique of our population. The probability is that the meeting will be rather preliminary to future movement than influential at the present moment, but as it will be open to all members of the medical profession—and we hope that there will be a large attendance—the questions to be debated should be of the first importance in clearing the ground for subsequent action. Hitherto the opinions of the medical profession have not had the influence in public affairs that they should have. The medical voice when raised in protest has often been disregarded. Medical advice has been usually sought when the mischief has been done. Medical views have been quite regularly as well as quite untruthfully represented as being directed only to obtaining privileges and monopolies for the members of the medical profession. The reasons for this position are numerous, and before we blame the public for not understanding collective medical aims and aspirations, we have to think how far those aims and aspirations in a form representing unity of spirit and ideal ever find public voice or public expression. The medical profession is quite insufficiently represented in the House of Commons by men who are in actual touch with some of the most important questions of local government and national welfare; but before we can expect the public to signify by ballot that they wish to be represented by medical men, we must satisfy them as to our common policy, as a profession, upon the principal matters requiring social adjustment and reformation. The ideal medical man in Parliament must not represent medicine only. He should be an interpreter of medical thought and aims to his fellow legislators. The better housing of the poor and the improvements of the conditions of labour are two things which will occupy the attention of legislation immediately after cessation of the war, and probably the future progress of this country will be enormously influenced by the method in which the indicated problems are attacked by the popular representatives in the House of Commons. If medical men are to be accepted with warmth as candidates for the popular suffrage, it will not suffice for us merely to go on attributing much disease to bad domestic environment or to evil factory conditions: it will be necessary for us to show how a medical profession, which has a common aim and to which there has been given proper opportunities, can lead in the abolition of social abuses.

Recently we asked the question how far the medical practitioner of the future, whether as a candidate for the House of Commons, or as a canvasser or voter, will have to "mix himself up with politics." It is a question which the future must, to some extent, be left to decide; but the attitude of standing aloof from social questions, when or because they have acquired a political aspect, must be dropped by all the doctors of the future. The medical man's part will be to place his science at the disposal of the public, and justify that science by precept and example. As candidate for Parliamentary election and later as Member of the House of Commons the medical man will necessarily have to study party questions, but his views even here will require the endorsement of his professional colleagues if they are to be of weight. The medical man who enters Parliament will not be able to do so as a "Member for medicine"; he will have to appeal to constituents as a man of affairs who will serve their interests and that of his country with full qualifications to do so; but his value to those constituents will be enhanced by his medical training and knowledge. The ideal medical candidate for Parliament is not likely to be found in large numbers or in many constituencies. When he is found, however, he should secure the support of his medical colleagues where they can conscientiously give it, and this should bring him votes where the public hold the profession of medicine high. A medical practitioner, equipped by his calling and experience of life to exercise judgment in many subjects outside the range of his profession, broad-minded and independent, will be more likely to serve his country usefully in Parliament than the majority of those who compete with him for the honour of doing so. On general grounds he should be a good Member of Parliament, while his special attributes must be valuable in countless directions. We hope that the meeting at the Steinway Hall next Tuesday will lead to practical steps.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND: SUBSCRIPTIONS TO THE SECOND APPEAL.—The following subscriptions have been received up to Monday last, Sept. 23rd:—

	£	s.	d.		£	s.	d.
Dr. G. Vernon Bull ...	2	2	0	Dr. Alfred Cox (monthly)	1	1	0
Capt. J. S. Clarke, R.A.M.C.	3	3	0	Capt. E. L. Lilley, R.A.M.C. (T.)	2	2	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W. 1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Annotations.

"Ne quid nimis."

THE WORK OF THE NATIONAL SERVICE BOARDS DURING 1918.

AN official statement emanating from the Ministry of National Service illustrates the practical value of the work which has been done by the National Service Medical Boards in Great Britain during the current year. In the course of the eight months of the year ending August 31st the number of medical examinations conducted by the boards in Great Britain amounted to over 2 millions, and during this period 28,000, or about 1·3 per cent. of the examinations, led to applications for medical re-examination. Of this number of applications less than half were considered by the appeal tribunals to rest on substantial grounds, while in the case of those applicants who obtained leave to be further examined by the medical assessors of the Local Government Board, the grading of half remained unchanged. The words of the Ministry of National Service that "converted into practical terms this result is expressed by the statement that National Service Boards working full time and examining 25 men per day of two and a half hours graded one man per week incorrectly" are fairly based on the figures, but the Ministry is of course perfectly aware that a very large number of appeals might have been made which for patriotic reasons were not advanced. This is a spirit of which the country has a right to be proud. Moreover, in many men the grading must to some extent be conditional; the great probability that a man may be able to discharge the responsibilities of his grading may not be justified in the event. The National Service Medical Boards have had many critics—some wise and some not, some honest and some not; but such figures form a challenge to criticism, however inspired, so long as those who challenge them understand their limitations as well as their origin. For our part, having all the circumstances in mind amidst which the National Service Medical Boards were created, we agree with the Ministry in considering that so fractional a percentage of error constitutes a record of which the medical profession has every right to be proud. And those responsible for the administrative machinery may similarly feel satisfied with their work, for it must be remembered that this machinery was created in a period of unprecedented strain upon the medical profession, in a country where the whole idea of conscription was novel, and where the difficulties were enhanced by the alteration in military age made by the Military Service (No. 2) Act. An important medical aspect of the work is the fact that the results of grading reveal a low state of national health, and it appears that the boards engaged upon the medical examination of women for State service have arrived at broadly similar results. The details of this immense mass of medical examinations have not, of course, been worked out, but we cannot hope that analysis will reveal anything but a most unsatisfactory story. Sufficient indications, and those of a pressing sort, have been obtained that the State must be ready to take effective measures on broad lines directly the war ends. The figures will undergo sifting and collating at the hands of the scientific advisers of the Ministry—indeed, this work has already been started.

CONCERNING MALARIA.

THE *Indian Medical Gazette* for July, 1918, is a "Special Quinine and Malarial Number," containing four original articles—two on treatment, two on prophylaxis. Those who have followed the researches on malaria conducted in this country during the war well know that so far it has not been found possible to *cure* simple tertian malaria infections by quinine used in any dose in any way, and that the fundamental fallacies underlying the pre-war text-book were traceable to a lack of adequate post-treatment observation period. Nor, so far, has salvarsan proved any more effective, though its "specific" action is just as well marked as that of quinine. How far these statements apply to malignant tertian malaria we cannot say, though the evidence is very clear that *Plasmodium falciparum* and *P. vivax* react differently to quinine and salvarsan, and it is consequently imperative that authors when they write of quinine and malaria should state to what exactly they are referring. There is, so far as we are aware, no evidence on record proving that a first attack of any form of malaria is more readily cured than a relapse. Of the efficiency of intramuscular injections of quinine, even in the strength 1 g. in 2 c.c. of water, in simple tertian malaria there is not the slightest doubt. Those who still conduct academic discussions on the point should read the literature. The fact, if it be so, that quinine (or what is supposed to be quinine) has been found *in situ* post mortem cannot stand against the clinical and microscopical evidence. Ramsden's and Lipkin's work suggests that it may not be quinine itself but a metabolite of quinine that is the actual parasiticidal agent; and, further, there is evidence that muscle possesses this power of metabolising quinine. The finding of "quinine" *in situ* in muscle may be, in fact, the very reason that intramuscular injections are so successful—viz., the muscle is exercising its metabolising function, a function which blood as compared with muscle possesses to hardly any appreciable extent. These are speculations, however, and do not in the least touch the established fact that intramuscular injection of quinine, even in 50 per cent. solution, is a good method of administering quinine in simple tertian malaria. Captain W. Fletcher, R.A.M.C., in a letter published in our present issue, expresses his belief "that 'quinine resistant' types of malaria are either extremely rare or non-existent." "A relapse," he says, "during adequate quinine treatment (defined above as 20 gr. or more every day) is, to say the least, uncommon"; but not only the records of such cases, in *simple tertian malaria*, but the frequency of their occurrence can be found in the literature for 1917. Major D. G. Marshall, I.M.S., has some instructive teaching on the matter on another page. In *simple tertian malaria* very little result is to be expected from such a quinine course. Quinine for the attack is a proved remedy, but no short road to *a cure* of *simple tertian malaria* by its means has hitherto been found. Quinine prophylaxis has not yet emerged from the ocean of contradictory statements that exist on the matter. There is only one method of putting an end to the confusion, and that is, to begin again, defining strictly the conditions of each experiment; it has not been generally recognised hitherto, for instance, that prophylaxis of a non-infected population and the "prophylaxis" (so-called) of an already infected population are two distinct questions.

The papers in the special number of the *Indian Medical Gazette* do not add much to our knowledge, and when quotations are given from older work, much of it is not satisfactory for various reasons.—"The Malaria Problem in Peace and War," by F. L. Hoffman, is a pamphlet of 100 pages, based on papers read at the annual meeting of the National Committee on Malaria, Memphis, Tenn., and at the Annual Convention of the New Jersey Mosquito Eradication Commission, Atlantic City, N.J. This able digest contains much matter difficult of access elsewhere, but while it gives a vivid idea of the vastness of the malaria problem, it can in no way replace the original papers, the study of which alone will reveal whether they are of value or not, a matter frequently impossible to ascertain from an abstract.

HELIOTHERAPY IN AFRICA.

HELIOTHERAPY has been principally practised on the continent, and only to a small extent in this country, partly because of less favourable climatic conditions and partly from want of appreciation of its value. In the *South African Medical Record* for July Dr. J. F. Haegert has reported remarkable results in South Africa, of which the following are some examples:—

An emaciated woman, aged 32 years, suffered from attacks of abdominal pain. The urine contained tubercle bacilli, which on catheterisation of the ureters were found to come from the right kidney. As an alternative to nephrectomy sun treatment was suggested. In two months she gained 15 lb. in weight and in a year was apparently cured.

A boy, aged 6 years, had been treated in hospital for tuberculosis of the hip by extension and fixation. He was pale and flabby and had a high evening temperature after any exertion. The head of the bone was eroded and there was shortening. After a few weeks of sun treatment he discarded his crutches and got about comfortably. After a few months he was robust and sturdy and apparently cured.

A Basuto, aged 40, had a rheumatic stiff hip-joint, with atrophy of the thigh muscles. After four months of sun baths, with massage, the hip-joint was quite free and the thigh muscles were normal.

A man, aged 52 years, had severe sciatica, with effusion into the knee-joint. The thigh muscles were flabby and atrophied. Sensation was practically absent in the three middle toes. He had been treated for 18 months by various practitioners in the large towns and operation on the nerve had been strongly suggested by one. He had tried different baths in the Orange Free State. The result was that he was bedridden and in constant pain. After a short period of sun treatment, with massage, he was a different man and could look after his farm work.

In early cases of tuberculosis cure was practically invariably obtained. In beginning sun treatment the first thing to do is to remove the coverings and confining apparatus and restore light to the atrophied limbs. By gradual stages the patient is trained to live in the open air and to tolerate prolonged exposure to the sun. Dr. Haegert recommends that the sun-bath be taken in a rectangular enclosure about 20 by 10 feet, the long axis pointing east and west, the sides made of reeds, mealie stalks, or zinc. The patient is clad in some white material and the head is protected with a white hat or an umbrella fixed to the bed. Dark glasses are worn to avoid the dazzling light. Irrespective of the locality of the disease, insolation is always begun on the lower limbs. Sunburn should never be produced. On the first day only the feet are exposed, next day the legs to the knees, then to the groins, then the abdomen, and finally the head and neck. As pigmentation advances precautions, at first essential, become superfluous, and daily insolations of four to six hours are given. Patients vary in the tolerance of the exposure. The rule is: Expose the patient as long as he bears it with pleasure and without lassitude.

SOCIAL INSURANCE IN GERMANY.

THOSE who have duties in connexion with National Insurance in the United Kingdom have been brought face to face with serious problems, increasing as the war is prolonged; but they may console themselves by considering how far more heavily the difficulties which weigh upon them are pressing upon those who in Germany are providing medical attendance, drugs, and necessary extra food for insured persons, out of limited and diminishing funds. In the New York *Spectator* for August 22nd the statistician of the Prudential Insurance Company of America calls attention to these difficulties as proved by the annual report of the Communal Sick Fund of the city of Leipzig, and criticises severely statements which he has met with, to the effect that Germany, by adroit falsification of Census returns in the past, deceived the rest of the world as to her man-power, and has since been able to maintain her resources by restoring an impossible proportion of sick and wounded soldiers to the battle-line. From the report of the Leipzig Communal Fund a diminution may be gathered amounting to more than one-half of the number of male members in the compulsory insurance section, and an increase from 31 to 56 per cent. in the proportion of women members of the same class. The report, however, gives no information as to the age of the women liability for whose health is imposed for the first time upon the fund, nor as to what proportion of them are married. The administration of the fund has evidently been lax, to the extent that it has not confined benefits to those provided for by its contract with insured persons, but has gone outside such limitations, charitably perhaps, or in obedience to instructions imposed by the State, but to an extent likely to have serious financial consequences. The results of dear and scarce food are to be clearly seen in the accounts of the Leipzig Fund, and are perhaps most strikingly illustrated by the increase in the number of malingerers. A large number of persons claimed medical benefits at Leipzig in 1917 in the hope of being able to supplement their food-supply under the doctor's orders, but failed to establish the fact that they were suffering from ill-health. In Munich a proposal that increased contributions to the Communal Fund should be demanded to meet an obvious shortage was defeated, and a resolution was carried by the employed persons interested that the deficit should be supplied from the reserve funds, a policy which must lead to insolvency if persisted in. The difficulties experienced in administering the National Insurance Acts in this country are growing, but they are still slight when compared with those experienced by our enemies.

"THE JOURNAL OF GENERAL PHYSIOLOGY."

THE opening number of a new periodical of great scientific interest in its outlook, entitled *The Journal of General Physiology*, is announced for issue this week in New York. The journal is intended to serve as an organ of publication for papers devoted to the investigation of life processes from a physico-chemical view-point. The preliminary statement points out what we have often suggested in these columns—that under the pressure of the demands of medicine and of other professions, physiology has developed in the direction of an applied science, with limited opportunity for the investigation of purely theoretical problems. On the other hand, the physico-chemical methods

of analysing life phenomena have thus far made little inroad into the domain of zoology and botany. In these circumstances the establishment of *The Journal of General Physiology* has been made with a very definite programme before the editors, namely Dr. Jacques Loeb, the Rockefeller Institute for Medical Research, 66th-street, New York City, and Professor W. J. V. Osterhout, Harvard University, Cambridge, Massachusetts. Contributions are invited relating to the physico-chemical explanation of life phenomena, no matter in what field of science they originate, and should be addressed to the editors at the Rockefeller Institute or 60, Buckingham-street, Cambridge, Mass. The subscription price is $5.00 per volume, is payable in advance, and issue is bi-monthly at the Rockefeller Institute, and should be paid by draft or cheque on New York or by postal money order.

THE VALUE OF TESTIMONIALS.

THE case of Nurse Eva Grace Thompson, tried before Mr. Justice Darling at the Central Criminal Court for the murder of a child aged 2 months at an "infant welfare centre," would have attracted more notice if the war were not absorbing the attention of all, for a second child's death and serious injury suffered by a third were probably due to the nurse's acts. Possibly, however, in time of peace no such tragic incidents as these would have occurred, for greater competition for the post held by Thompson would have caused a stricter inquiry into the character and antecedents of the candidate for it. As it is, this unhappy young woman was found guilty, but was also proved to have been insane when she fractured her little victim's skull. Evidence was given that she had spent three years in a home (1909 to 1912) as the result of addiction to drugs, and that she had recently fractured her own skull probably by striking it against the floor. She herself admitted that she had been under treatment for drugs, and Mr. F. J. W. Sass, deputy medical officer at Holloway Prison, gave evidence entirely consistent with these statements based upon his observation of the prisoner. In these circumstances it is evident that any close inquiry into the previous history of Thompson, described as a trained nurse, 33 years of age, would have prevented her engagement at an infant welfare centre or at any kindred institution. In her case, however, a written "reference" from a lady who "had known her personally and her work" had been accepted without further question. The difficulty of obtaining suitable persons in war-time for almost any post may account for, but cannot justify, the readiness with which such a vague testimonial was accepted. Many persons may now be obliged to employ for their private convenience men and women whom they would not consider for a moment if they had others to select from, but it is different where an institution is charged with the care of children or of other helpless persons. Moreover, at such institutions there is, or should be, no difficulty in obtaining the assistance of a medical practitioner in the selection of a trained nurse where the evidence to character and attainments is unduly slight.

KING'S COLLEGE MEDICAL SCHOOL.—The opening of the winter session will take place at the school, Denmark-hill, on Tuesday, Oct. 1st, when Sir Watson Cheyne will deliver the introductory address, after a short statement as to the position of the institution has been made by Dr. H. Willoughby Lyle, the dean of the school.

ROYAL AIR FORCE MEDICAL SERVICE.

THE conditions of the Medical Service of the Royal Air Force have now been made public, and will be received by our readers with considerable gratification. In obvious directions—for example, in the allocation of officers to suitable posts and in the opportunities given for promotion by merit—the conditions mark a real advance. The task of selecting flying officers, to mention one grand duty of the Medical Service of the Royal Air Force, presents many difficulties, which are discussed elsewhere in these columns; and from this point of view alone the recognition of scientific counsels by the Royal Air Force is very welcome.

CONDITIONS OF SERVICE.

General.

1. For the present two main, or special, divisions of the medical work of the Royal Air Force will be recognised—namely, (*a*) care of the effective personnel, and (*b*) care of the non-effective personnel.

2. The former may be considered to represent the hygiene and preventive side of the work, and to include such special subjects as selection and care of the flying personnel, maintenance and improvement of the physical efficiency of all ranks, sanitation, &c. The latter represents the curative side of the work, and certain subdivisions that Air Force experience has shown to be necessary will be recognised—namely, neurology, surgery of the eye, throat, nose, and ear, and plastic surgery, &c., in addition to general medicine, surgery, and pathology, &c.

3. Subject to the exigencies of the Service, a medical officer will be selected for, and eventually allocated to, work in the subdivision for which his ability best suits him. Since, however, the success of any special work in the Air Force will depend upon a sound knowledge of the conditions of life of the effective personnel, medical officers will not be earmarked for one of the special subdivisions of the Medical Service until selected for the higher or Grade A pay, vide Appendix II.

4. While it would be impossible for the Air Council to give any guarantee that an officer will be employed continuously on a line of work in which he happens to have acquired special knowledge, the endeavour of the administration will be in this direction.

5. It should also be generally realised by medical officers that the direction, or administration, of the divisions and subdivisions will be entrusted to those whose special knowledge of the subject, or subjects, will ensure the best technical control.

6. It will be observed (para. 21 and Appendix II.) that the system of charge pay as in vogue in the Navy and Army Medical Services has been replaced in the Air Force Medical Service by a system of special merit pay. An officer once selected for Grade A pay will draw such pay for a probationary period of one year, and if then confirmed, will, except in the case of incompetence or misconduct, continue to draw this pay however employed until promoted to the next higher rank, when he will be placed in Grade B until again selected for Grade A.

7. An officer appointed in charge of a hospital or other unit which in the Navy or Army would carry charge pay, or which previously was held by an officer drawing Grade A pay, is not thereby entitled to Grade A pay; nor will seniority of itself entitle an officer to Grade A pay.

8. A limited number of commissions as administrative officers (medical) will be available, and warrant officers and non-commissioned officers transferring from the R.A.M.C. or entering the R.A.F.M.S. direct will be eligible for promotion to these appointments.

9. Particular attention is drawn to the difference between the terms "transferred" (as applied to temporary officers) and "attached." The former implies relinquishment of any temporary commission held at the time of transfer; the latter is analogous to seconded service, and enables the officer in question to return to his original service at the end of a stated period without loss of seniority or pension in respect of such attachment.

10. Permanent commissions will not be granted at present, and the conditions of service and scales of pay set out in this Memorandum will be subject to revision at the end of the war, or before that time if the Air Council so decide. When a permanent Air Force Medical Service is established previous experience as medical officer in the R.A.F. will be taken into account in granting such permanent commissions.

Duration of Service.

11. No person will by reason of attachment or transfer to the R.A.F. become liable for service with the Forces for a longer period than that for which he would have been liable had such attachment or transfer not taken place.

12. Subject to para. 11, permanent officers of the Royal Navy, including officers who have joined the Reserve of Medical Officers from the permanent list, and Royal Naval Volunteer Reserve Medical Officers, will be *attached* to the R.A.F. for a period of three years or the duration of the War, whichever is the longer. Regular and Territorial officers or members of the Special Reserve of the R.A.M.C. will be *attached* to the Royal Air Force for the duration of the War. (Officers who are seconded from the Navy and Army will receive assurance in writing that their prospects of promotion by selection in their own service will not be prejudiced. Ref. 7070/18.)

13. Subject to para. 11, temporary medical officers of the Royal Navy or Royal Army Medical Corps and dental surgeons will be *transferred* to the Royal Air Force for the remainder of the period for which they were liable to serve with the Royal Navy or R.A.M.C., as the case may be.

14. Subject to para. 11, R.A.M.C. orderlies will be transferred to the R.A.F. for the remainder of the period for which they were liable to serve with the R.A.M.C.

Rank.

15. Promotion to ranks above that of Captain in the R.A.F. Medical Service will be by selection to fill vacancies in the establishment.

16. On attachment or transfer to the R.A.F. officers will receive temporary commissions in the R.A.F., with rank corresponding to their rank, substantive or temporary, prior to attachment or transfer as shown in Appendix I.

17. An officer attached to the R.A.F. receiving promotion in the Navy or Army during such attachment will receive corresponding rank in the R.A.F., and be held supernumerary to the establishment until a vacancy occurs in such higher rank in the R.A.F. for which he may be selected.

18. Officers lent to the R.A.F. becoming attached or transferred to the R.A.F. will receive seniority in the R.A.F. from the 1st April, 1918, and will be placed upon the R.A.F. list in order, based on their seniority in the service from which they are attached or transferred.

19. R.A.M.C. orderlies transferring to the R.A.F. will be graded in ranks corresponding to their rank in the R.A.M.C.

Pay, Allowances and Gratuity.

20. Officers attached to the R.A.F. will be paid at the rates set out in Appendix II. (Grade B) subject to reserved rights as in para. 29.

21. A proportion of officers will be selected for pay at the higher rate (Grade A) on the recommendation of the Medical Administrative Committee. The Committee will take into consideration: (*a*) Length of service; (*b*) war or specially meritorious service with the R.N.A.S. or R.F.C.; (*c*) medical qualifications; and (*d*) any other special service or qualification possessed by the officer in question. The names of all officers transferred or attached will be periodically considered for selection to Grade A.

22. Medical officers attached to the R.A.F. will receive allowances on the scales laid down for corresponding ranks in the R.A.M.C. These allowances may be varied from time to time to meet the conditions prevailing in the R.A.F., but are at present similar to those issued to Army officers.

23. Temporary medical officers, both R.N.A.S. and R.A.M.C., transferred to the R.A.F., if not above the rank of Captain, will be paid at rates similar to the rates paid to temporary medical officers of the R.A.M.C.—namely, 24*s.* a day inclusive of all allowances except (*a*) ration allowance when rations are not issued in kind, and (*b*) travelling allowances and expenses when travelling on duty.

24. Temporary medical officers with the rank of Major (or senior to Major) transferred to the R.A.F. will receive pay at the rates for medical officers as shown in Appendix II., Grade B or A, as the case may be. This also applies to promotions after transfer.

25. Dental surgeons transferred to the R.A.F. will receive pay at rates similar to the rates paid to dental surgeons in the Army inclusive of all allowances except travelling allowances and lodging, fuel and light allowances when quarters are not found and they are required to live away from their usual place of residence in civilian life.

26. Temporary medical officers of the R.A.M.C. transferred to the R.A.F. will receive such proportion of their annual gratuity of £60 as has accrued up to the date of transfer and will hereafter receive a gratuity at the rate of £60 for each year's service in the R.A.F. This gratuity is awarded under the terms of the contract set out in Appendix III.

27. R.A.M.C. orderlies transferred to the R.A.F. will receive pay at the rates they were receiving in the R.A.M.C. as corps pay and basic pay. A special rate of pay for R.A.F. medical orderlies is under consideration.

28. Temporary medical officers of the Royal Navy transferred to the R.A.F. will receive a gratuity of £60 for each year's satisfactory service (vide Appendix III.) with the R.A.F., subject to a minimum of two months' pay at R.N. rates.

29. While it is impossible to pledge the future as to the prospect of individuals, and while reasonable latitude must be allowed to the Air Council to deal with any privilege or emoluments which are not subject to vested rights, it may be taken as a general principle that no person will suffer loss of emolument or pension by reason of attachment or transfer to the R.A.F.

30. In pursuance of this principle any person becoming attached or transferred to the R.A.F. will continue at the rate of pay he was already receiving where such rate was higher than the rates set out in this Memorandum.

31. An outfit allowance of £25 will be granted to officers becoming attached or transferred from the Royal Navy, and £10 in the case of officers becoming attached or transferred from the Army. Officers becoming attached or transferred from the Royal Navy with the rank of field officer in the R.A.F. will receive an outfit allowance of £30.

32. Officers having already received an allowance for khaki uniform in the Royal Navy will receive only £10.

APPENDIX I.

Rank in R.N.	Rank in R.A.M.C.	Rank in R.A.F.
—	Lieutenant.	Lieutenant.
Surgeon.	Captain.	Captain.
Staff Surgeon.	Major.	Major.
Fleet Surgeon.	Lieut.-Colonel.	Lieut.-Colonel.

APPENDIX II.

Daily Pay for Medical Officers (Excluding Temporary Medical Officers Under the Rank of Major).

Rank.	Grade B.	Grade A.
Lieutenant	14*s.*	—
Captain...	16*s.* and 19*s.*	22*s.*
Major	24*s.*	27*s.*
Lieut.-Colonel ...	36*s.*	40*s.*

APPENDIX III.

A.M. Form 161.

FOR GENTLEMEN SUBJECT TO THE MILITARY SERVICE ACTS.

To His Majesty's Principal Secretary of State for the Royal Air Force.

I.....

of.....

being qualified to practise medicine and surgery, and being registered under the Medical Act now in force in the United Kingdom, hereby offer and agree if accepted by you to serve at home or abroad as a Surgeon to His Majesty's Forces with the temporary rank of Lieutenant in the Royal Air Force while so employed, on the following conditions:—

1. The period of my service hereunder shall commence as from the day on which I shall commence duty, and shall continue until the termination of the present emergency, or until my services are no longer required, whichever shall first happen.

2. My pay shall (subject as hereinafter appears) be 24*s.* a day for the said period, such rate to be inclusive of all money allowances, except the regulated travelling allowances and expenses when travelling on duty.

3. In addition to such pay, I shall receive a free passage to any country abroad to which I may be sent, and (subject as hereinafter appears) a similar free passage back to England.

4. I shall receive free rations, or an allowance in lieu thereof, and when considered necessary for the performance of my duties the use of a Government horse and forage.

5. During the said period I will devote my whole time and professional skill to my service hereunder, and will obey all orders given to me by superior Air Force, Naval, or Military officers.

6. In case I shall have completed my service hereunder to your satisfaction in all respects, I shall receive at the end of the said period a gratuity of £60 sterling for each 12 months or part thereof, but in case I shall in any manner misconduct myself, or shall be (otherwise than through illness or unavoidable accident) unfit in any respect for service hereunder, of which misconduct or unfitness you or your authorised representative shall be sole judge, you shall be at liberty from and immediately after such misconduct or unfitness to discharge me from further service hereunder, and thereupon all pay and allowances hereunder shall cease, and I shall not be entitled to any free passage home or gratuity.

Dated this.....day of.....19.....

.....(here sign).

Witness to the signature of the said

.....

.....(Witness).

On behalf of the Secretary of State I accept the foregoing offer.

.....

Medical Administrator, Royal Air Force.

SOCIETY FOR THE STUDY OF INEBRIETY.—The next meeting of this society will be held on Tuesday, Oct. 8th, at 4 P.M., in the Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W. 1, when Major Robert B. Wild, M.D., professor of materia medica and therapeutics in the Victoria University of Manchester, will open a discussion on "The Pharmacology of Alcohol." All interested in the subject are invited to be present.

Correspondence.

"Audi alteram partem."

QUININE RESISTANT MALARIA.

To the Editor of THE LANCET.

SIR,—Nowadays one hears frequently of malaria which is resistant to quinine, in the sense that while the patient is taking 20 gr. or more every day the fever endures beyond the fourth day; and though he continues to take quinine in undiminished doses, from time to time he has relapses associated with the presence of asexual parasites in the peripheral blood.

In this sense I believe that "quinine resistant" types of malaria are either extremely rare or non-existent. I am not concerned here with relapses which occur *after* the patient has reduced his daily dose of quinine below 20 gr., or has stopped taking it altogether; all of us are but too familiar with such cases, and I remember an *obiter dictum* of Sir Patrick Manson:

"We don't cure protozoal infections with drugs. We keep them in check until the resisting power of the patient can overcome them."

There are relapses in malaria after treatment with quinine; but a relapse *during* adequate quinine treatment is, to say the least, uncommon.

Now that many medical men without experience of tropical diseases are called upon to treat cases of malaria, it is of the utmost importance that they should know what a trusty weapon lies ready to hand and that their faith in quinine should not be undermined at the outset. Sir Patrick Manson writes:—

"Many drugs have been employed in the treatment of malarial disease, and many drugs have some influence on it: all sink into insignificance in comparison with quinine. To use any drug to the exclusion of quinine is serious trifling."[1]

In THE LANCET of June 22nd is an article by Major E. B. Gunson, Captain F. W. Winning, and Lieutenants G. A. Johnstone, J. H. Porter, and G. B. Scott, entitled "The Treatment of Severe Relapsing Cases of Malaria." The "routine treatment by oral quinine" consisted in putting the patient to bed and giving him at least 20 gr. every day until he was discharged from hospital. In this way 323 men were treated, with the result that 30 per cent. relapsed while they were taking quinine, and some of them developed long periods of sustained pyrexia or became increasingly cachectic.

These results are quite contrary to my own experience, and to that of many other workers. Captain David Thompson has reported[2] on the results of treatment by quinine of 200 patients who had contracted malaria in many different parts of the world. Only one of these 200 patients showed "quinine resistance," and in this instance the nurse "admitted that some doses had been omitted about the time of the relapse."

During the years 1904 to 1908 I was in charge of the General Hospital, Kuala Lumpur, Federated Malay States. This was in the early days of rubber planting; virgin jungle was felled, great tracts of country were brought under cultivation, new roads and railways were being constructed, and large gangs of imported coolies were gathered together for the work. In a tropical country such conditions almost invariably give rise to malaria in epidemic form, and the Malay States proved no exception.

Large numbers of patients were admitted to the hospitals, and the General Hospital at Kuala Lumpur had its share. I have no access to the figures at present, but the number of cases of malaria treated in that hospital during those years was well over 2000, about one-sixth of which were simple tertian infections and the remainder subtertian and quartan. These patients were under my personal care, and I saw them at least three times a week. In not more than half a dozen cases did a relapse occur while the patient was taking 20 gr. of quinine sulphate daily, and in each of the half dozen cases I had grounds for suspecting that the quinine had not been taken regularly. I have never seen a patient relapse a second time while he was taking 20 gr. of quinine every day.

My experience with soldiers who have contracted malaria during the present war has not been different from that gained in the tropics. From February to July, 1918, malarial parasites were found in the blood of 301 patients examined in this laboratory (*P. vivax*, 278; *P. falciparum*, 22; *P. malariæ*, 1). Each patient was given 10 gr. of quinine twice a day while he remained in hospital, with the result that in the great majority of cases the temperature came down to normal in a day or two. In 11 cases the fever lasted until the third day and in one until the fourth day after the commencement of treatment. Only two men relapsed, and I suspect that they had managed to escape some doses of quinine, for after special attention was paid to them the fever and the parasites quickly disappeared. This series is not strictly comparable with Major Gunson's; his patients stayed in hospital for seven weeks, but only 73 of these remained for more than a fortnight.

There is no cogent evidence that the malaria parasites in one part of the world are more resistant to quinine than those found elsewhere. *P. vivax* is as readily influenced by quinine whether it come from the Near or from the Far East or from any other part of the world. We have, most of us, heard of "quinine-fast" malaria parasites, but how many have actually encountered them? Has anyone ever seen a case of malaria in which the fever continued and asexual parasites were still to be found in the peripheral blood after the patient had been taking quinine in doses amounting to 20 or 30 gr. a day for four days and was continuing to take it?

The commonest cause of "resistance" is insufficient concentration of quinine in the patient's blood, due to insufficient dosage or to failure to take the drug regularly. Quinine is unpleasantly bitter and the soldier is not alone in trying to get out of taking it. Most people find it a dull business to look after cases of malaria who are up and about, so that it is not always difficult for the patient to escape his dose. If the administration be left to the patient one can be certain that quinine is not taken regularly. When I have been recovering from malaria myself I have found it impossible to remember my quinine; the only way in which I could insure taking it regularly was by making my "boy" put two capsules beside my plate at breakfast and again at dinner.

With reference to the form in which quinine should be administered a good deal has been written lately about the advantages of quinine injections in the routine treatment of malaria, but Sir Patrick Manson holds the opinion that "the intramuscular injection of quinine must not be practised without good reason or as the routine treatment of ordinary malarial attacks."[3] In 1905 I treated several hundred patients with injections of quinine, but I did not find that the results were any better than when it was given by the mouth, and I came to the conclusion that intramuscular and intravenous injections should be reserved for patients with very urgent symptoms, persistent vomiting or coma. It is very rarely necessary to continue to administer the drug by these routes for more than one or two days. Sir Ronald Ross writes: "I really do not know why this form of medication is continued in malaria."[4]

I do not wish to enter upon the question of malaria-prophylaxis and the prevention of relapses after treatment, but I will say at once that I have seen the best results from the routine administration, by the mouth, of 10 gr. of quinine twice a day, continued for as long as three months if possible, and then stopped entirely. I have found it a good rule to add 2 gr. to the 20 gr. for each stone above a weight of 10 st.

It is quite common to meet people who say that they cannot take quinine, but in reality an idiosyncrasy with respect to it (as manifested by urticaria with vomiting and collapse) is a great rarity. I have never seen anyone harmed by 20 gr. of quinine a day, even when continued over a long period. If the patient objects to the drug in liquid form the powder can be put up in the gelatine capsules which are supplied, empty, by Messrs. Parke, Davis, and Co.

In spite of general opinion, I think that quinine should be commenced as soon as malaria parasites have been found. To wait until the temperature comes down is wasting time; in some cases the temperature never comes down until the patient dies. Ten grains of aspirin give the greatest relief when there is fever.

[1] Manson: Tropical Diseases, fifth edition, p. 118.
[2] Journal, Royal Army Medical Corps, July, 1917.
[3] Loc. cit., p. 124.
[4] See Annals of Tropical Medicine and Parasitology, June, 1917.

I will conclude by quoting Sir Patrick Manson once more: "If a supposed ague resist ..... quinine ..... the diagnosis should be revised."[5]—I am, Sir, yours faithfully,

WILLIAM FLETCHER,
Captain, R.A.M.C.; Pathologist, Institute for Medical Research, Kuala Lumpur, F.M.S.
The Laboratory, University War Hospital, Southampton, Aug. 1st.

HYPNOSIS IN HYSTERIA.

To the Editor of THE LANCET.

SIR,—I am glad to take the opportunity afforded me by Captain J. R. O'Brien's courteous letter in your issue of Sept. 21st to enlarge somewhat upon the question of the relation between hypnosis and hysteria, although a really adequate discussion of this relation would fill volumes. It is well known that Charcot failed therapeutically through his excessive enthusiasm for hypnosis. His methods were so vigorous, and he applied them so frequently upon the same subjects, that these subjects became more and more dissociated, more and more suggestible, more and more hysterical. Hence the *grande hystérie*, the *attitudes passionnelles*, &c., which are now so seldom met with. In other words, he "cultivated" hysteria at the Salpêtrière But in doing so he made great additions to our theoretical knowledge of both hypnosis and hysteria. His failure as a physician and his success as a scientist are both summed up in his statement, "Hypnotism is an artificial hysteria." I consider this statement, as far as it goes, to be absolutely true. The more one sees of hysteria and the more one sees of the results of hypnotism the more convinced one becomes of the intimate relation between the two. That is why hypnotism is such a dangerous method to use in the hands of operators whose enthusiasm outruns their psychological knowledge and skill. Safeguards are necessary, and in my article in THE LANCET of August 17th I have indicated the modifications of ordinary hypnotic procedure which I have found practically satisfactory in dealing with hysterical soldiers in the field shortly after their exposure to shell fire. Shell concussion, or the mental strain of being under shell fire, had already hypnotised them and produced a certain amount of mental dissociation in the form of amnesia, loss of motor or sensory functions, &c., without demonstrable organic nerve lesions, and by means of my method of light hypnosis I was able to remove the underlying cause of this dissociation and neutralise it by subsequent re-association.

No doubt there are other forms of dissociation besides that of hysteria. But the point is that the dissociation of hysteria and the dissociation of hypnosis are identical in nature. Captain O'Brien writes: "Thousands of healthy men absolutely devoid of any trace of hysteria have been hypnotised, while hysteria itself, instead of favouring the induction of hypnosis renders it more difficult." With the second half of this statement I entirely disagree. My experience has been that the more hysterical a patient is the easier it is to hypnotise him. I also believe that when an apparently normal person is hypnotised he is rendered temporarily hysterical by the very process of hypnosis, the vigorous emotional appeal of the operator producing a dissociation of a hysterical nature. Such a person will be more hysterical thereafter, and will be more susceptible to hypnotism, unless steps are taken to counteract this effect. I, of course, recognise how large a proportion of apparently normal people can be hypnotised by one means or another—although in many cases the degree of hypnosis is slight—but then most people, if not all, have some hysterical flaw, some dissociation following upon mental conflict, in their mental make-up. "Jedermann ist ein bisschen hysterisch," said Moebius, and this slight degree of hysteria is what ensures the success of the resolute hypnotist. The mild methods which I myself use have no effect upon apparently normal persons, although they are invariably successful with hysterical soldiers hot from the firing line. In my opinion, more impressive methods are to be deprecated, as their dissociative effects are difficult to neutralise afterwards.

When Captain O'Brien writes as follows: "Pierre Janet's theory that only hysterical patients can be hypnotised rests on the assumption that the presence of the secondary self is always a symptom of hysteria," I am again unable to follow him. Pierre Janet has no dealings with a "secondary self." He prefers to avoid hypothesis as far as possible, and to speak simply of dissociated ideas. When these ideas are sufficiently numerous and linked up with one another, they may produce the appearance of an alternating or dual personality. The essential psychological characteristic of the hysteric is, in Janet's view, a weakness of mental synthesis. I can only repeat that my personal experience with cases in France agrees closely with the views of Janet, but is at variance with much that has been written elsewhere. It seems to me that only by the aid of hypnosis and other forms of mental analysis will the problem of hysteria be finally solved. I am, Sir, yours faithfully,

WILLIAM BROWN,
Major, R.A.M.C.
Craiglockhart War Hospital, Edinburgh, Sept. 21st, 1918.

[5] Loc. cit., p. 120.

DRIED *V.* CONDENSED MILK: A CORRECTION.

To the Editor of THE LANCET.

CHER MONSIEUR,—Je me permets de recourir à votre haute impartialité pour vous demander de bien vouloir rectifier dans le prochain numéro du "LANCET" l'erreur de traduction qui s'est glissée à l'occasion de ma précédente lettre sur le lait condensé.[1] Cela vous apparaitra d'autant plus nécessaire que cette erreur dénature complètement ma pensée et le sens de ma lettre. En effet, je disais:

"Mes dernières recherches me permettent de conclure que les laits condensés non sucrés sont inférieurs aux laits condensés sucrés et j'affirme que les laits *écrémés* constituent des produits dangereux pour les jeunes enfants."

Or votre traducteur a écrit:

"Unsweetened condensed milk he considers positively dangerous."

Il y a là une interprétation qui me fait dire le contraire de ce que je pense: Ce sont les laits condensés privés de leur crème qui je considère comme dangereux pour les enfants, mais si j'estime aussi que le lait condensé sucré est le meilleur aliment de la 1ère enfance je reconnais après une longue expérience et je l'ai declaré dans de nombreuses publications, que les laits condensés non sucrés (mais contenant leur crème), sont néanmoins excellents et bien préférables à tous les autres laits en usage dans l'alimentation de la 1ère enfance.

Votre souci de la vérité scientifique, m'assure que vous voudrez bien, cher Monsieur, corriger la fausse impression qu'ont pu avoir vos lecteurs.

Recevez avec mes remerciements l'hommage de ma haute et sympathique considération. P. LASSABLIÈRE.

Chef de Laboratoire à la Faculté de Médecine de Paris.

Sept. 17th, 1918.

METHODS OF CONTROL OF FRAGMENTS IN GUNSHOT WOUNDS OF THE JAW.

To the Editor of THE LANCET.

SIR,—May I be allowed to make a few remarks on an interesting article under the above heading that appeared in your issue of Sept. 7th by Major H. P. Pickerill.

I appreciate much that Major Pickerill has written, and was particularly gratified to find him adopting as a routine methods and principles that I and my colleague, Mr. Percival P. Cole, at the King George Hospital, have consistently advocated and practised since the early days of the war. I refer in particular to: (1) The importance he attaches to the control of the posterior fragment; (2) the preservation of comminuted fragment of bone; (3) his condemnation of the needless extraction of teeth in the vicinity of the fracture; and (4) his preference for the immediate as opposed to the gradual reduction of malocclusion.

As regards (1), it is interesting to note that as recently as March, 1918, at a meeting of the Odontological Section of the Royal Society of Medicine, Major Pickerill expressed doubt whether we (Mr. Cole and myself) "can control the posterior fragment at any rate by the methods shown." In view of this pronouncement it is interesting to find that, with the exception of the zygomatic screw method, his procedure of controlling the posterior fragment, when the ascending ramus is fractured above the level of the alveolar border, is identical in principle with the one I have always employed—the impression of the fragment being taken with the upper splint *in situ* and a saddle adapted to the model thus obtained and secured to the upper splint.

(2), (3), and (4) were dealt with by me in a paper read at the same meeting, and published later in the Transactions, reference to which will prove the identity of Major Pickerill's method with those therein advocated.

Major Pickerill in his article refers to "the four-tailed bandage," "screw lever splint," and a "submandibular

[1] THE LANCET, August 24th, 1918 (p. 245).

splint." The four-tailed bandage was discarded by me early in the war as being obsolete, the objections to it being so obvious. In its place was substituted a webbing bandage with soft adaptable chin-piece. Two inches of the webbing which passes vertically upwards from the chin is replaced by garter elastic (double thickness, one inch wide). To each piece of webbing at either end is fitted an independent buckle, so that any desired tension can be obtained. With splint in position this bandage efficiently controls any comminuted fragments, bringing them up in position if displaced and maintaining them there, and is, in my opinion, a much simpler and more comfortable device for achieving this than by the screw lever splint.

This bandage also exerts an inward pressure on the lower border of the horizontal ramus of the mandible, and is more than sufficient to overcome the everting pull that occurs in fractures in region of symphysis, and which Major Pickerill obviates by bolting or wiring. That the simpler method of bandaging and splinting does accomplish this end is proved by results, the percentage of non-union of fractures in this area treated on such lines being negligible. The combination of this bandage with the open bite splint entirely obviates the use of suspensory splints objected to by Major Pickerill. One omission in his article is surprising, and that is that there is no reference whatever to the employment of the open bite splint, the advantages of which are so manifold, simplifying as it does the whole treatment of jaw injuries.

As regards the submandibular splint which Major Pickerill uses in the treatment of edentulous cases, I cannot claim to have had any experience with this type. The intraoral supramandibular splint, secured by circumferential wires, being so simple, so efficient in immobilising fragments, in maintaining function, and the end results so uniformly good that occasion has never arisen to experiment with any other.

At the meeting in March above referred to, Major Pickerill made caustic comments on the method of fixation of circumferential wires as being likely to introduce "the unnecessary element of sepsis." Bearing this criticism in mind, his advocacy of a perforating bolt secured by nuts is piquantly inconsistent.—I am, Sir, yours faithfully,

CHARLES H. BUBB,
Honorary Dental Surgeon, the King George Hospital.

Burlington-gardens, W., Sept. 16th, 1918.

A NASAL DRILL IN THE TREATMENT OF ADENOIDS.

To the Editor of THE LANCET.

SIR,—I have been interested since the year 1910 in the observation of cases of chronic lymphatic stasis which have yielded to the treatment designed by Mrs. E. Handcock. In the earlier cases this was applied to the elimination of waste products in the neighbourhood of arthritic swellings; the same principle of artificial lymphatic circulation in later cases showed that the upper air passages could be cleared by external manipulative treatment in many instances of chronic inflammation.

The letters which you have published on nasal drill will draw attention to this undoubted addition to medical knowledge. I am, Sir, yours faithfully,

Harley-street, W., Sept. 24th, 1918. H. BELLAMY GARDNER.

NASO-PHARYNGEAL INFECTION AT THE ONSET OF CEREBRO-SPINAL FEVER.

To the Editor of THE LANCET.

SIR,—Staff Surgeon Fildes's letter in your issue of Sept. 14th, severely criticising Colonel Gordon's views on cerebro-spinal fever, obviously shows his own view to be that many cases of the disease do not have the meningococci in their throats, and he says at the end: "We came to the same obvious conclusion—namely, that Colonel Gordon's statement was much too sweeping, in fact incorrect. Our work is quite well known to Colonel Gordon."

If, Sir, you will turn to the Medical Research Committee's Special Report Series, No. 17, published on August 2nd this year by Staff Surgeon Fildes and Temporary Surgeon S. L. Baker, R.N., you will see on p. 26, under heading, "The Examination of the Patient's Naso-pharynx for Meningococcus," that after mentioning that Flack had found these organisms in this region in all his cases in the earliest stage, and deduced therefrom that their presence was a valuable diagnostic sign in doubtful cases, these authors proceed:—

> "We ourselves are unable to confirm Flack's results as to the constant presence of meningococci in the throat because our swabs were taken on the average nine days after onset, while Flack took his much earlier. Rather less than half our cases showed meningococci in the throat. On general grounds, however, it would appear very probable that meningococci are constantly present in the throat, as stated by Flack; nevertheless, we doubt whether this fact can be taken as being practically diagnostic in certain cases."

It would appear, therefore, that Staff Surgeon Fildes is capable of holding two diametrically opposite views on the same subject at, substantially, the same time.

I am, Sir, yours faithfully,

T. G. M. HINE,
Major, R.A.M.C.

Central C.-S.F. Laboratory, Sept. 19th, 1918.

SANDFLY FEVER OR INFLUENZA.

To the Editor of THE LANCET.

SIR,—In your annotation in THE LANCET of Sept. 14th you deal with the problem raised by Professor G. Sampietro of the belief in Italy of the identity of sandfly fever with the so-called "Spanish influenza." On superficial examination sandfly fever certainly does simulate influenza in epidemic prevalence, sudden onset, and general clinical features, and while it is well known that the signs and symptoms of certain epidemic disease may materially differ according as they occur in tropical, subtropical, or temperate regions of the world, yet there can be no doubt in the mind of the careful clinician that we are dealing with two distinct diseases, and not the same clinical disease or one modified by climatic change. In sandfly fever pharyngeal and laryngeal irritation and catarrh are uncommon, and if present are very transitory, while the pulmonary manifestations of influenza are practically never seen. Local lesions produced by the bite of the sandfly on exposed surfaces of the body occur in over 90 per cent. of patients with sandfly fever, and in any epidemic this should suffice to establish a definite diagnosis. Mortality in sandfly fever may be said to be nil.

We have in sandfly fever, therefore, a rarity of catarrhal conditions of the respiratory passages, a negligible mortality rate, and a definite local skin lesion, in contrast with the general pharyngeal, laryngeal, or pulmonary catarrh, definite mortality rate, and absence of skin lesion in influenza. These suffice to distinguish the two diseases, quite apart from any bacteriological investigations or the prevalence of the sandfly in the district affected.—I am, Sir, yours faithfully,

J. LAMBERT,
Temporary Surgeon, R.N.

Sept. 20th, 1918.

MANGANESE POISONING.

To the Editor of THE LANCET.

SIR,—In the edition just published of the "Nomenclature of Diseases" the metal manganese for the first time finds a place among the poisons. At least its name does not appear in the editions issued in 1896 and 1906. So long ago as 1894 I certified manganese as the primary cause of a young girl's death. Prior to this I had discovered that manganese fumes were emitted from the chimneys of the blacksmith and the plumber during the process of melting the metals they use. The chimneys of these industries never require sweeping and the metallic fumes, along with the products from the combustion of coal such as benzene and naphthalene, go right out to the air. Just as the Gulf Stream is an oceanic current, these fumes form an atmospheric current and travel, especially in the case of the blacksmith, a considerable distance. They are wafted along by prevailing winds, and, gathering moisture, ultimately form a green deposit on wooden fences and trees and the slates and stonework of houses. The deposit in the case of the blacksmith is a bright green and that of the plumber a darker green. The vegetable part of the deposit under the microscope is seen to consist of cells of a very simple character. I have not seen moss near it.

The opinion I formed at that time was that manganese given by the mouth seemed rather inert, but that when injected subcutaneously or inhaled it became poisonous and was cumulative and the symptoms like lead, zinc, and arsenic poisoning.—I am, Sir, yours faithfully,

JAMES GAIRDNER, M.D., D.P.H.,
M.O.H., Crieff.

Crieff, N.B., Sept. 20th, 1918.

The War.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue :—

Killed.

Surg.-Prob. N. C. Ward, R.N.V.R.

Died of Wounds.

Capt. J. C. Forsyth, Canadian A.M.C.

Died.

Major A. Johnston, R.A.M.C., qualified at Glasgow in 1883, and held appointments at Monsall Hospital, Manchester, at Wrexham Infirmary, and at the Victoria Hospital, Burnley. At the time of joining up he was medical officer of the Belvidere Fever Hospital, Glasgow, and deputy medical officer of health for the city. For some time he was in command of the Military Isolation Hospital at Aldershot, and died at Glasgow.

Staff Surg. C. D. Marshall, R.N.V.R., was a student at University College Hospital, London, and qualified in 1890. He held appointments at the Royal London Ophthalmic Hospital, at the Children's Hospital, Chelsea, and at University College Hospital, and prior to joining up was in ophthalmic practice in Harley-street, London. He died at the Colaba War Hospital, Bombay, and at the time of his death was principal medical officer in the Persian Gulf and Mesopotamia.

Wounded.

Capt. A. C. B. Biggs, M.C., R.A.M.C.
Capt. J. R. John, R.A.M.C., attached Sherwood Foresters.
Lieut. W. Q. Wood, R.A.M.C., attached Royal Irish Rifles.
Lieut. D. B. Leitch, R.A.M.C., attached Welsh Regiment.
Capt. G. F. Denyes, Canadian A.M.C.
Capt. A. S. Cockburn, Australian A.M.C.
Capt. G. R. Hamilton, Australian A.M.C.
Capt. A. P. Murphy, Australian A.M.C.
Major W. C. Sawers, Australian A.M.C.
Capt. J. Carrick, R.A.M.C., attached, R.F.A.

Previously reported Missing, now reported Prisoner in German Hands.

Lieut. C. Murray, R.A.M.C.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported :—

Lieut. G. K. Elliott, Royal Welsh Fusiliers, killed in action, elder son of Dr. G. Elliott, of Baschurch, near Shrewsbury.

A. D. Pole, Alberta Regiment, killed in action, youngest son of the late Dr. A. Pole, of Lenzie, near Glasgow.

Second Lieut. E. N. Andrews, The Buffs, died of wounds, youngest son of Dr. E. C. Andrews, of Hampstead, London, N.W.

Second Lieut. C. J. N. Lambert, M.C., R.F.A., killed in action, elder son of Dr. H. L. Lambert, of Barnes, London, S.W.

Capt. G. P. Randall, M.C., King's Own Scottish Borderers, killed in action, eldest son of Dr. P. N. Randall, of Bromley, Kent.

H. P. Clepperton, Queen's Royal West Surrey Regiment, killed in action, son of the late Dr. J. Clepperton, of Broughton, Hants.

Second Lieut. C. E. Hadwen, killed in action, only son of Mr. A. St. J. Hadwen, of Ilford, Essex.

Capt. L. V. Royle, M.C., Royal Air Force, killed whilst flying, elder son of Mr. A. Royle, C.B., of Esher, Surrey.

THE HONOURS LIST.

In recognition of his services on the occasion of the sortie of the *Goeben* and *Breslau* from the Dardanelles on Jan. 20th, 1918, the *Distinguished Service Cross* has been conferred upon—

Surg. James Maurice Harrison, R.N. (H.M. Monitor "M28").

A wounded man having fallen into the water, Surg. Harrison went in after him and kept him afloat until picked up. It was due to his untiring efforts that eight severely wounded cases arrived in good condition at the hospital ship 22 hours later.

For services in action with enemy submarines the *Distinguished Service Cross* has also been conferred upon—

Surg.-Prob. G. E. Strahan, R.N.V.R.

The following awards to medical officers are announced. All are members of the R.A.M.C. unless otherwise stated :—

Bar to the Distinguished Service Order.

Capt. (acting Lt.-Col.) **WILLIAM BLACKWOOD, D.S.O.**—For conspicuous gallantry and devotion to duty while in charge of the evacuation of casualties from the Divisional front during an enemy attack. When communication with the advanced dressing station was cut by enemy barrage he re-established communication and personally visited the posts under his administration. Throughout the fighting he visited the forward area daily, and his indefatigable energy and exceptional organising ability were invaluable to the Division.

Maj. (temp. Lt.-Col.) **THOMAS ERNEST HARTY, D.S.O.**—For conspicuous gallantry and devotion to duty. For nearly a month this officer was in charge of the evacuations of the wounded on the front of a whole Division. His initiative, courage, and resource during much heavy fighting resulted in the successful clearing of all wounded in the forward area, which he frequently visited during heavy shelling to see that his orders were being executed properly, and also to inspire confidence. He never spared himself in his efforts to arrange for the wounded.

Distinguished Service Order.

Temp. Capt. **RALPH FRANKLIN EMINSON.**—For conspicuous gallantry and devotion to duty. When two companies who had made a counter-attack and reached a village were obliged to fall back 150 yards, suffering heavy casualties, whom it was impossible to rescue owing to the accurate machine-gun and rifle fire from the village, this officer went himself, regardless of fire, and in full view of the enemy, across "No Man's Land" many times, and carried and assisted back the wounded, who would otherwise have been left.

Major **JAMES BEVERLEY METCALFE, M.C.**, Australian A.M.C.—For conspicuous gallantry and devotion to duty. In a village under heavy bombardment of gas and high explosives, this officer, with practically no protection, tended the wounded for four and a half hours. When the advanced dressing station had been moved to a new site, he remained with four men evacuating odd cases which continued to come in until two shells came right into the dressing-room, severely wounding him. His cheerfulness and coolness throughout encouraged all around him.

Temp. Capt. (acting Major) **HENRY MOORE, M.C.**—For conspicuous gallantry and devotion to duty. He went through heavy machine-gun and rifle fire to a dressing station which was being evacuated and cleared a large number of wounded. He also took cars to battery positions which were being shelled, and removed the wounded to safety. At the dressing stations during enemy bombardment he remained to the last, and saved many lives by his courage and devotion to duty.

Major **LESLIE GEMMEL TASSIE**, Australian A.M.C.—For conspicuous gallantry and devotion to duty. This officer set a fine example of coolness in going about amongst his stretcher-bearers directing and encouraging them. Day and night he visited the regimental aid-post and loading-posts, rearranging bearer relays and supervising the evacuation of wounded. Hearing there were several wounded in a village which was being heavily shelled, he organised parties and cleared the village.

Capt. and Bt. Major **ARTHUR WALKER.**—For conspicuous gallantry and devotion to duty in establishing forward dressing stations and continuing to work in them until forced to move by the immediate proximity of the enemy. He was repeatedly working in the open under heavy fire, no protection being available. He undoubtedly saved many lives which would have been lost but for his courage and initiative.

Second Bar to the Military Cross.

Capt. (acting Major) **FRANK GRAHAME LESCHER, M.C.**—For conspicuous gallantry and devotion to duty. When his camp was heavily shelled he had the wounded removed and attended them in the open for six hours. Again, during the night, when the transport was bombed, he proceeded to the scene and extricated the wounded men and attended to them, although the enemy continued to shell the position.

Temp. Capt. **CLARENCE RANDOLPH YOUNG, M.C.**—For conspicuous gallantry and devotion to duty. When all the officers of the battalion had become casualties, and his aid-post was almost surrounded by the enemy, he succeeded in evacuating many of the wounded in spite of continuous and heavy fire. His energy and disregard for his personal safety inspired all who came in contact with him.

Bar to the Military Cross.

Temp. Capt. **GEORGE OLIVER FAIRTLOUGH ALLEY, M.C.**—For conspicuous gallantry and devotion to duty. After the troops had retired past his aid-post, which was temporarily established in a shell hole, this officer continued to attend to and evacuate the wounded. He was exposed to fire from both sides, but succeeded in regaining the line after having evacuated all the wounded. He thus prevented any of them falling into the hands of the enemy.

Temp. Capt. (acting Major) **BERTRAM FRIEND BARTLETT, M.C.**—For conspicuous gallantry and devotion to duty as battalion medical officer. Under heavy machine-gun and shell fire he continuously bandaged wounded. Though early in the day wounded, he stuck to his duties, and his pluck and determination saved many lives.

Temp. Capt. **STANLEY JAMES ANNEAR BEALE, M.C.**—For conspicuous gallantry and devotion to duty in working unceasingly for 48 hours at advanced aid-posts. As each post in its turn became untenable he moved back to another, all the time carrying on dressing and evacuating wounded, while frequently exposed to machine-gun fire. By his energy he was responsible for saving large numbers of wounded from falling into the enemy's hands.

Capt. **JOHN ARTHUR BELL, M.C.**—For conspicuous gallantry and devotion to duty in action. He was ordered to replace a medical officer who was wounded, and at once went up through a heavy barrage, establishing a dressing station in the open, and showed the greatest coolness and devotion to duty in attending the wounded under very heavy shell fire. He continued his fine work for several days, and was the means of saving many lives. His courage and fine example greatly inspired all ranks with him.

Capt. **HAWTREY WILLIAM BROWNE, M.C.**—For conspicuous gallantry and devotion to duty. When an advanced dressing station was cut off by the enemy barrage this officer made a very plucky attempt to reach it. Later, when, owing to losses amongst battalion M.O.'s, he was sent to a regimental aid-post, he remained there until the enemy was within 300 yards of it, evacuating all his wounded and coming back with the last case under machine-gun fire. He set a fine example of coolness and resource.

Temp. Lieut. (acting Capt.) **WILLIAM KEALTY CAMPBELL, D.S.O., M.C.**—For conspicuous gallantry and devotion to duty during a withdrawal. After a long march he took over the advanced evacuation of the wounded, and having visited the whole line, made his dispositions. Next day he visited all R.M.O.'s under machine-gun fire. He showed great energy and determination.

Capt. **HARRY EDMUND CRESWELL, M.C.**—For conspicuous gallantry and devotion to duty. After an intense bombardment with gas shells a village was ordered to be cleared. He was one of the last to leave, and, though he himself was very badly gassed, he continued to work until he had done everything for the casualties that lay in his power, and was ordered to the field ambulance.

Temp. Capt. **JOHN POLSON DAVIDSON, M.C.**—For conspicuous gallantry and devotion to duty while in charge of forward bearers. By his cool courage he was largely instrumental in getting away all wounded under heavy shell fire. His consistent devotion to duty set a splendid example to all his party.

Capt. **THOMAS McNAUGHTON DAVIE, M.C.**—For conspicuous gallantry and devotion to duty. When battalion headquarters were practically surrounded, and he saw that he could be of no further use, he made his escape, and after all the officers of the battalion had become casualties, he remained with the men in the open throughout the fighting on that and the following day. The next day he again went into action with the remnants of the battalion in a counter-attack, rendering excellent service. His cool self-possession and devotion to the wounded under very heavy fire did much to steady all ranks.

Capt. (acting Major) **FRED ELLIS, M.C.**—For conspicuous gallantry and devotion to duty during an enemy attack. When the enemy had approached within 200 yards of his advanced dressing station he ordered his personnel to withdraw, and remained at his post under heavy shell fire with a few men to care for the wounded. When a bridge over which the cases were evacuated was destroyed, he evacuated by hand-carry to a point a mile distant, and he managed to salve his two ambulance cars. His services were of a high order.

Temp. Capt. **JOHN JAMES HARROWER FERGUSON, M.C.**—For conspicuous gallantry and devotion to duty. He went forward in charge of bearer squads, under machine-gun fire, to find a regimental aid-post with which contact had been lost. When there he showed great disregard for personal safety, and set a fine example to the bearers, and did not leave the post until all the casualties had been evacuated, although the enemy was almost in the immediate vicinity.

Capt. **FRANK PERCY FREEMAN, M.C.**—For conspicuous gallantry and devotion to duty during an enemy attack. Though wounded by a shell, he first attended to others wounded by the same shell. Later he accompanied his commanding officer through a heavy barrage of high explosives and machine-gun fire to the corps line, where he stayed for two hours attending to wounded.

Temp. Capt. (acting Major) **HUGH BERNARD GERMAN, M.C.**—For conspicuous gallantry and devotion to duty while in charge of stretcher-bearers. He supervised the evacuation of wounded from the front line to the advanced dressing station, often under heavy shell fire. Also he continuously dressed wounded in a dressing station unprotected from shell fire.

Temp. Capt. (acting Major) **ROBERT MASSON GREIG, M.C.**—For conspicuous gallantry and devotion to duty throughout prolonged fighting. For about a fortnight he worked with but little sleep and food, collecting and carrying in wounded under intense shell and machine-gun fire. During this period he maintained touch with six different battalions, and successfully got away all their wounded.

Temp. Capt. **AUSTIN HARVEY HUYCKE, M.C.**—For conspicuous gallantry and devotion to duty. When the officer in charge of an advanced dressing station and several of his orderlies were killed or wounded, he went forward and took charge of the station, and by his courage and energy under heavy shell fire succeeded in getting away the cases. He saved many lives.

Temp. Capt. **EDMUND BASIL JARDINE, M.C.**—For conspicuous gallantry and devotion to duty. Though his dressing-station was blown up by shell fire, and when transferred to another place was again shelled, he steadily continued his work. He gallantly made several journeys to the regimental aid-post under extremely heavy fire, and located and disposed of all casualties collected there. His zeal, courage, and untiring energy were beyond all praise.

Temp. Capt. **JAMES HUNTLY LEGGE, M.C.**—For conspicuous gallantry and devotion to duty when acting as bearer officer during a raid. He established a post in the front line, which came under continuous and heavy barrage. Hearing there were wounded in front he several times led squads of bearers through the barrage and brought in wounded. It was largely due to his magnificent efforts that the clearing was successfully accomplished, and only two men were missing. His energy and devotion to duty were the means of saving many lives.

Temp. Capt. **GEORGE EDWIN LINDSAY, M.C.**—For conspicuous gallantry and devotion to duty. Not only did this officer carry out his professional duties with a cheerfulness that inspired all ranks, but on two occasions, regardless of personal danger, he continually attended wounded in the open under heavy machine-gun and rifle fire, only withdrawing when ordered to by his C.O.

Capt. **JOHN WRIGHT MALCOLM, M.C.**—For conspicuous gallantry and devotion to duty during an enemy attack. He was at an advanced dressing station with another medical officer, and seeing the enemy advancing they loaded their car with wounded and, picking up others on the way, conveyed them to a safe place. During the journey he was under close and constant fire.

Temp. Capt. **FREDERICK BUICK McCARTER, M.C.**—For conspicuous gallantry and devotion to duty. During a severe engagement this officer established an advanced dressing station within 200 yards of the front line, where for 48 hours, continuously under heavy fire, he attended to the casualties and arranged for their evacuation.

Capt. **WILLIAM HILGROVE LESLIE McCARTHY, M.C.**—For conspicuous gallantry and devotion to duty. This officer, hearing that an aid-post was filled with wounded who could not be evacuated by the normal route owing to the enemy bombardment, led a party of stretcher-bearers through heavy shell fire and reorganised the evacuation. He dressed four wounded men in the open on the way up, and made several journeys during the day.

Temp. Capt. **DANIEL McKELVEY, M.C.**—For conspicuous gallantry and devotion to duty in evacuating the wounded. With a small ambulance car he went to and fro right up to the firing line, meeting the stretcher-bearers and bringing back the wounded as soon as dressed. In spite of heavy fire he carried on his well-organised arrangements. Later, whilst looking for a new dressing station, he was captured, but managed to make good his escape. Throughout the operations he displayed great energy, and his work was magnificent.

Temp. Capt. **GEORGE BOYD McTAVISH, M.C.**—For conspicuous gallantry and devotion to duty. Throughout nine days' operations he worked continuously in charge of the bearer division, and refused to be relieved. He went to and fro superintending the clearing of the wounded, quite regardless of the many barrages he had to pass, and no doubt saved many lives by his untiring zeal and coolness.

Capt. **DUNCAN WESTLAKE PAILTHORPE, M.C.**—For conspicuous gallantry and devotion to duty after a raid in collecting wounded under fire, working till daylight. He then went out in broad daylight, established the fact that a man reported missing was dead on the enemy's wire, and brought him in from within ten yards of the wire.

Temp. Capt. **REGINALD THOMPSON RAINE, M.C.**—For conspicuous gallantry and devotion to duty. He attended the wounded under heavy rifle and shell fire, and superintended their evacuation. By his devotion to duty he set a fine example to all ranks.

Capt. **JOHN ELVIN RUSBY, M.C.**—For conspicuous gallantry and devotion to duty. During an intense bombardment an artillery dug-out was blown in. This officer with his stretcher-bearers dug out two officers and three men who were buried. Later he went to an exposed flank to attend to wounded men under heavy fire. Throughout the whole week's operations he worked untiringly, and undoubtedly saved many lives.

Capt. (acting Major) **ARTHUR ASHTON SMALLEY, M.C.**—For conspicuous gallantry and devotion to duty in his skilful and bold leading of the stretcher-bearers and in evacuating the wounded. By his devotion to duty under the heaviest fire he was always an inspiring example to his men.

Capt. (acting Major) **CHARLES NIXON SMITH, M.C.**—For conspicuous gallantry and devotion to duty. This officer was in charge of an advanced dressing station and the collection of wounded from two infantry brigades for four days. By reconnoitring and frequent visits to his posts he was able to keep in touch with the rear aid-posts, and to vary his arrangements according to the casualties. He administered the advanced dressing station in a building with little protection, which was repeatedly hit by shells. His scheme for evacuating the wounded worked well, and a large number of casualties were quickly got away.

Temp. Capt. **JAMES WILLIAMSON TOCHER, M.C.**—For conspicuous gallantry and devotion to duty. On several occasions he showed great organising skill under very trying conditions. During the attack of a brigade he worked at and between two posts, and succeeded in evacuating all the wounded. His coolness and devotion to duty throughout were a splendid example to the officers and men working under him.

Capt. **WILLIAM JOSEPH WEBSTER, M.C.**—For conspicuous gallantry and devotion to duty when getting up to a collecting-post and supervising the evacuation of the wounded under direct enemy machine-gun fire. His ambulance car had most of its body blown away and the radiator perforated. In spite of this by plugging the holes with candle grease, he was able to bring the car back through the heavy barrage with eight wounded men. He showed fine devotion to duty.

The Military Cross.

Lieut. JOSEPH ADAMS.—For conspicuous gallantry and devotion to duty in dressing and attending to wounded in an aid-post under heavy shell fire, and later in organising stretcher parties and getting wounded away under heavy fire.

Temp. Capt. **DOUGLAS REID ALEXANDER.**—For conspicuous gallantry and devotion to duty in constantly attending to wounded under heavy shell fire, working day and night for six days at very high pressure. He showed a fine example of coolness and courage to all, and by his perseverance the lives of many were saved.

Capt. **FRANCIS DIGHTON ANNESLEY.**—For conspicuous gallantry and devotion to duty in action. When a report was brought to headquarters of a brigade that the cookhouse of the battery had been struck, and that there were many killed and wounded men inside, he immediately left his aid-post and went forward to see what assistance he could give. Whilst going up, a shell struck the remaining portion of the cookhouse, partially burying the occupants. He personally assisted in extricating the men, dressed their wounds on the spot under heavy shell fire, and got them away safely to the dressing station. His promptness and courage were undoubtedly the means of saving several lives.

Capt. **GEOFFREY PENROSE ARNOLD, Australian A.M.C.**—For conspicuous gallantry and devotion to duty. During a night counter-attack this officer formed his regimental aid-post in the open just in front of the jumping-off line, and continued to dress wounded there for twenty-four hours under continuous fire. The medical officers of two other battalions both became casualties early in the attack, and he attended to the wounded of these battalions besides his own. His coolness and splendid work saved scores of lives.

Capt. **FREDERICK STANLEY SEDALE.**—For conspicuous gallantry and devotion to duty. This officer was working at an aid-post in a village, a portion of which was captured by the enemy. He remained until the last possible moment, only leaving when all wounded had been evacuated. He then established an aid-post in the open, working unceasingly day and night, being the only medical officer left in the area, and his staff greatly reduced. His attention to the wounded, at great personal risk, was most praiseworthy.

Capt. **FRANCIS LIONEL PERCY GARNETT BENNETT.**—For conspicuous gallantry and devotion to duty. Seeing that wounded men were in danger of becoming prisoners, he obtained ambulance cars, and three times personally took them away under heavy shell and machine-gun fire. On the last occasion he was himself wounded, but he sent his last car away full and struggled on on foot until he met with assistance. He had been working continuously for 48 hours previously.

Temp. Lieut. (temp. Capt.) JOHN HAMILTON BOAG.—For conspicuous gallantry and devotion to duty. When his aid-post was occupied by the enemy he hastily established himself in a new position and rendered valuable assistance. He several times went fearlessly out under machine-gun fire and brought in casualties, and by his devotion saved many lives.

Temp. Capt. (acting Major) CECIL ANDERSON BOYD.—For conspicuous gallantry and devotion to duty. He repeatedly attended to wounded under heavy shell fire, and on several occasions was compelled to evacuate his aid-post, succeeding each time in removing all his wounded, often across country, and by his fine judgment and tireless energy saving a large number from falling into the enemy's hands. His conduct throughout was excellent, the conditions being exceptionally hazardous and trying.

Temp. Capt. HAROLD FRANCIS BRICE-SMITH.—For conspicuous gallantry and devotion to duty. This officer displayed great gallantry during ten days' severe fighting, attending to wounded men under severe hostile artillery fire. He was himself wounded in the arm at an early stage, but with unselfish devotion he remained at his duty throughout the operation, rendering most valuable service night and day, although suffering great pain from his injuries.

Capt. (acting Major) GEORGE ALLMAN BRIDGE.—For conspicuous gallantry and devotion to duty. This officer, who was in charge of a forward dressing station and bearer posts, hearing that one had been blown in, proceeded at once with a N.C.O. through a heavy barrage and rescued the injured men, conveying them to a place of safety. After establishing another post he filled up shell holes at a cross road to enable motor ambulances to pass.

Capt. (acting Major) CHARLES FRANK BURTON.—For conspicuous gallantry and devotion to duty in his skilful leading of the stretcher-bearers on all occasions. He has always shown great coolness under the heaviest fire.

Capt. CHARLES HOPE CARLTON.—For conspicuous gallantry and devotion to duty. He took an ambulance car into a village after the enemy had entered it, and succeeded in clearing several wounded in the face of heavy machine-gun and rifle fire. Throughout operations he showed great energy and devotion to duty under very difficult conditions.

Temp. Capt. (acting Major) PHILIP CARNEY.—For conspicuous gallantry and devotion to duty in leading motor ambulance wagons up to a village under heavy fire and bringing away the last of the wounded. On many occasions he showed a splendid example of devotion to duty under most difficult conditions.

Capt. GERALD FRANCIS CARR.—For conspicuous gallantry and devotion to duty. Although the advanced dressing station of which he was in charge was shelled out three times, by his coolness and example he got all the patients and personnel safely away, and re-established his dressing station without interrupting the evacuation.

Temp. Capt. CLIFFORD CUTHBERT CHANCE.—For conspicuous gallantry and devotion to duty. When a heavy barrage interrupted communications between regimental aid-posts and relay posts he reorganised his squads and led them through the barrage, cleared all the wounded, and re-established the chain of evacuation. He has repeatedly led his squads through heavy fire and gas shells, and has by his magnificent example of devotion to duty maintained the morale of tired and shaken bearers.

Temp. Lieut. CHARLES CLYNE.—For conspicuous gallantry and devotion to duty. He worked for 24 hours in a barn under machine-gun and shell fire, and evacuated over 200 cases. Two days later, under heavy shell fire, he continued to evacuate wounded. His devotion to duty saved many lives.

Temp. Lieut. GEORGE CARTER COSSAR.—For conspicuous gallantry and devotion to duty. This officer, who was medical officer of the battalion, performed his duties with the greatest coolness under heavy fire and gas shelling for four days, attending to the casualties with great devotion to duty, although on one occasion he became unconscious from gas. He was twice wounded, but remained at his work, though suffering all the time from the effects of gas. His gallant conduct and disregard for his own safety set the finest example to his men and maintained the steadfastness of the workers in the regimental aid-post during many dangerous periods.

Temp. Capt. DOUGLAS CRELLIN.—For conspicuous gallantry and devotion to duty in remaining at an advanced dressing station till all the wounded were clear, in spite of the enemy's approach, and the rain of gas and high explosive shells.

Capt. SPENCER STAWELL CROSSE.—For conspicuous gallantry and devotion to duty in tending wounded under heavy fire. Thanks to his untiring efforts, no wounded were left in the enemy's hands.

Capt. (acting Major) JOHN WILLIAM DALE.—For conspicuous gallantry and devotion to duty. He collected and evacuated many wounded from close up to the enemy lines. Also, he completed evacuation of all wounded from an advanced dressing station when the enemy was within 200 yards. He showed fine courage and determination.

Temp. Lieut. DAVID DAVIES.—For conspicuous gallantry and devotion to duty in organising bearers and attending to the wounded. He took forward the stretcher-bearers in a counter-attack under heavy shell and machine-gun fire to within a few yards of the enemy and collected all wounded.

Temp. Capt. (acting Major) JOHN EDGAR DAVIES.—For conspicuous gallantry and devotion to duty while in charge of stretcher-bearers. He evacuated wounded over ground heavily shelled in full view of the enemy. Although several of his bearers were wounded, he showed a personal disregard for his own safety, and set a fine example to his men.

Capt. ERNEST NOEL BROUGHAM DOCKER, Australian A.M.C.—For conspicuous gallantry and devotion to duty during an attack. He followed up with his bearers, picked up gunners, gained touch with the regimental aid-posts, and organised a line of bearer relays. This was done at night under machine-gun and heavy shell fire.

Capt. DONALD GORDON DUFF.—For conspicuous gallantry and devotion to duty. He proceeded to an area that was being heavily shelled, and at once organised stretcher parties, superintended the conveyance of wounded to his dug-out, and returned to make certain that no casualties were left. His coolness and devotion to duty throughout have been most marked.

Temp. Capt. GEORGE DUNLUCE ECCLES.—For conspicuous gallantry and devotion to duty in evacuating his wounded from the firing line. Although obliged to retire on four separate occasions, he with great skill and resourcefulness cleared all his wounded safely. His complete disregard of danger was entirely responsible for a completely successful evacuation under circumstances of considerable difficulty.

Capt. (acting Major) THOMAS STOKOE ELLIOT.—For conspicuous gallantry and devotion to duty. This officer was unremitting in superintending the dressing of the wounded during four days' fighting. He was in charge of three advanced dressing stations, each of which was in turn destroyed by enemy shell fire, but he managed to evacuate all the wounded. Officers, personnel, and patients were all encouraged by his cool example.

Capt. FRANK WILLIAM FAY, Australian A.M.C.—For conspicuous gallantry and devotion to duty while in charge of the transport and evacuation of wounded from the divisional main dressing station. The station was twice hit by shells, but he succeeded in clearing all wounded, exposing himself in bringing up ambulance cars and showing great energy and devotion to duty.

Temp. Capt. JOHN JAMES HARROWER FERGUSON.—For conspicuous gallantry and devotion to duty. When a brother officer was buried amongst a mass of bricks as a result of a shell having struck his billet, this officer, hearing his cries for help, discovered his whereabouts in the darkness, and after four hours' work, although the place was being heavily shelled the whole time, succeeded in extricating him.

Capt (acting Major) WILLIAM HAIG FERGUSON.—For conspicuous gallantry and devotion to duty. When the advanced dressing station was completely destroyed by shell fire and everyone was ordered to take cover, this officer left his dug-out and carried several wounded, unaided, some hundred yards to safety, passing through a zone of gas and heavily shelled area. He did the same thing again later on.

Capt. (acting Major) ROBERT ALEXANDER FLOOD.—For conspicuous gallantry and devotion to duty. With the enemy within 300 yards of a divisional rest station he got a car loaded with wounded and took those who could walk and one stretcher case across the fields. Although knocked down by a H.E. shell, he finally got them to shelter.

Temp. Capt. AUGUSTIN POWNALL FRY.—For conspicuous gallantry and devotion to duty in going from place to place across the open, under heavy machine-gun, rifle, and shell fire, to attend to the wounded. His absolute fearlessness undoubtedly saved many men from bleeding to death. Throughout he displayed devotion to duty of a high order.

Capt. WILLIAM CLARKE GIVENS, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. He organised and maintained for two days under shell and rifle fire a first-aid post, rendering aid to a large number of cases. Next day he established a dressing station, where he worked for 60 hours without relief.

Capt. (acting Major) HENRY NORMAN GOODE.—For conspicuous gallantry and devotion to duty. He was in charge of the bearers collecting wounded, and frequently visited his posts under very heavy shell fire. He organised the evacuation of the casualties from the regimental aid-posts to the advanced dressing station, frequently being obliged to alter his routes and establish new relay posts, owing to the heavy shelling. It was largely owing to his courage and energetic ability that the removal of the wounded was carried out in such a speedy and efficient manner.

Capt. FRANCIS HENNESSEY GOSS.—For conspicuous gallantry and devotion to duty. This officer worked all night in the open in front of the line, under heavy fire, dressing the wounded and carrying them back to safety. His temporary aid-post was captured and his staff made prisoners, but he made his way back through the enemy lines alone. The following night he made many journeys into the open, carrying wounded on his back to temporary shelter. His devotion to duty saved many lives.

Temp. Capt. (acting Major) FRANK CYRIL GREIG.—For conspicuous gallantry and devotion to duty. He was in charge of the advanced dressing station for five days, working under very heavy fire the whole time organising the disposition of his bearers. When the post was almost completely destroyed by shell fire some of his men were buried in a dug-out, and he worked with unremitting energy under heavy shell fire to get them out.

Temp. Capt. CHARLES HOPE HADDOW.—For conspicuous gallantry and devotion to duty. When the enemy drove the line back to battalion headquarters he kept his aid-post established until they were within 200 yards, and succeeded in evacuating all wounded. Later, during a counter-attack, he showed untiring energy in dressing and evacuating wounded under very trying conditions. He showed fine devotion to duty.

Temp. Capt. ALFRED ERNEST HALLINAN.—For conspicuous gallantry and devotion to duty. When his aid-post was surrounded by the enemy, he got through to battalion headquarters, reported on the situation, and established an aid-post there, where he evacuated a large number of wounded. Later, he worked for hours at another aid-post, while the enemy were within a few hundred yards. He displayed great energy and efficiency.

Temp. Capt. CHESTER HARRIS.—For conspicuous gallantry and devotion to duty. When the enemy was attacking in large numbers he, in spite of the heavy shell and intense machine-gun fire, succeeded in clearing all the wounded, and three times went back through heavy barrage to dress and carry in wounded men. His conduct was admirable.

Capt. (acting Major) JOHN HENDERSON HUNTER.—For conspicuous gallantry and devotion to duty while in charge of advanced dressing stations, which were continually shelled.

Capt. GEORGE KINGSLEY EDWIN INMAN.—For conspicuous gallantry and devotion to duty. Hearing that the Infantry were heavily engaged, he obtained permission to go forward and help them. He found that the position was being heavily shelled and that the regimental medical officer had been killed. He at once assumed medical charge of the battalion, and though the Infantry had retired twice took stretcher-bearers back to the position, and thus rescued many wounded who might otherwise have been captured.

Temp. Capt. CHARLES GEORGE LAMBIE.—For conspicuous gallantry and devotion to duty in tending wounded under intense hostile barrage, constantly going out into the open and bringing wounded in. On a later occasion he went from battery to battery under heavy shell fire, dressing the wounded and getting them away to the nearest ambulance. He was several times hit by shell splinters.

Temp. Capt. JOHN GAGEN LEE.—For conspicuous gallantry and devotion to duty in attending to casualties under very heavy machine-gun and shell fire continuously for four days. He was wounded on the second day, but remained at duty. He had his dressing station blown up twice. Each time new stations were reorganised very quickly. He behaved splendidly, and his conduct was a very fine example to all.

Temp. Capt. (acting Major) FRANCIS CHARLES LEES.—For conspicuous gallantry and devotion to duty while in charge of the arrangements for the evacuation of wounded. For 48 hours he worked unceasingly in an advanced dressing station, and owing to his courage and energy a large number of wounded were cleared from the forward area under most difficult circumstances.

Temp. Capt. SIDNEY JOHN LIDDON LINDEMAN.—For conspicuous gallantry and devotion to duty. For ten days he worked unceasingly, tending wounded under heavy fire, saving many lives. On one occasion, under intense machine-gun fire, he still continued dressing and collecting wounded, and his complete disregard of danger set a fine example to those under him.

Temp. Capt. (acting Major) JOHN WYCLIFFE LINNELL.—For conspicuous gallantry and devotion to duty in dressing and evacuating wounded under shell fire, during five days' operations. On two of the days, at great personal risk, he cleared wounded from villages which were being shelled.

Temp. Capt. VERNON EDMUND LLOYD.—For conspicuous gallantry and devotion to duty. While in charge of stretcher-bearers he worked for hours under shell fire, evacuating wounded; and in an advanced dressing station exposed to shell fire he dressed and evacuated a large number of wounded.

Temp. Capt. GEORGE ALBERT LYONS.—For conspicuous gallantry and devotion to duty. During four days' heavy fighting he worked unceasingly. When the regimental aid-post was heavily shelled he organised a carrying party and removed all men incapable of walking. He was the cause of saving many lives.

Capt. JAMES McLEAN MACFARLANE.—For conspicuous gallantry and devotion to duty. This officer, while a town was being heavily bombarded, frequently entered it to attend to the wounded who required surgical aid before they could be evacuated. Later he attended to the wounded, and evacuated them to the casualty clearing station, for three days working day and night, and when compelled to leave owing to the heavy shelling took his party to man a bridge over a canal, carrying on until ordered to leave just before the bridge was blown up. He was responsible for the saving of many lives.

Temp. Capt. JAMES DAVID MACKINNON.—For conspicuous gallantry and devotion to duty. During very heavy fighting he attended to the wounded in the open under machine-gun and rifle fire. He showed fine courage and saved many lives.

Temp. Capt. KENNETH DUNCAN CAMERON MACRAE.—For conspicuous gallantry and devotion to duty. He constantly attended to wounded under machine-gun and shell fire. He also maintained an aid-post on the line of the enemy's artillery barrage. By his devotion to duty many lives were saved.

Capt. (acting Major) ALEXANDER CROSS MALLACE.—For conspicuous gallantry and devotion to duty when in charge of advanced dressing stations. He worked continuously under shell fire, and when our troops had to retire he remained to clear his last cases until the enemy was within 100 yards.

Capt. (acting Major) WILLIAM McCOMBIE.—For conspicuous gallantry and devotion to duty. He repeatedly visited, under very heavy fire of all descriptions, the aid-posts he was engaged in clearing, personally conducting his bearers with complete disregard for his own safety in those localities where the fire was most heavy. Under very trying circumstances he showed great devotion to duty.

Temp. Capt. (acting Major) FRANCIS DE SALES McMENAMIN.—For conspicuous gallantry and devotion to duty. He worked day and night, getting into touch with regimental aid-posts and evacuating their wounded under heavy shell and machine-gun fire. By his untiring devotion to duty he saved many lives.

Temp. Capt. DAVID GAIR McRAE.—For conspicuous gallantry and devotion to duty while in charge of an aid-post during an enemy attack. Hearing that a siege battery was being heavily shelled and had many casualties, he at once proceeded, with a non-commissioned officer, to attend to the wounded in the battery position, and stayed there, under shell fire, for an hour. Throughout he showed fine disregard of his own safety and great devotion to duty.

Temp. Capt. JOHN PEARSON McVEY.—For conspicuous gallantry and devotion to duty. He organised and established aid posts near the front line under heavy shell fire and dealt with a large number of casualties. Though short of dressing, stretchers, and bearers he successfully evacuated many wounded, while 10 out of 18 of his staff were casualties.

Capt. CHARLES GRAHAM MEADE.—For conspicuous gallantry and devotion to duty. While brigade headquarters were being shelled this officer worked unceasingly, attending wounded gunners and infantry. Later, on receiving an urgent message from a battery, he set off by himself through a heavy barrage, and though suffering from the effects of gas, performed his duties in the open, regardless of all danger. He behaved splendidly.

Capt. HARRY MIDDLETON.—For conspicuous gallantry and devotion to duty during an enemy attack. Though suffering from the effects of gas, he remained at duty dressing wounded for four days until ordered to hospital. He was frequently under shell fire and had to change his aid-post several times.

Temp. Capt. ALEXANDER DRYDEN MOFFATT.—For conspicuous gallantry and devotion to duty at an advanced dressing station. He worked continuously under shell fire for 18 hours, dressing a large number of wounded. The dressing station was hit three times, but he carried on his work in a cellar.

Temp. Capt. DUNCAN COLLINGWOOD OGILVIE.—For conspicuous gallantry and devotion to duty while in charge of a walking wounded collecting post. For 16 hours he worked single-handed under heavy shell fire, dressing and evacuating wounded. Later he reopened a dressing station which had been evacuated and worked there for 48 hours.

Temp. Lieut. JAMES CARTER OGILVIE.—For conspicuous gallantry and devotion to duty. As medical officer of the battalion he did excellent work during four days' strenuous fighting. He was continually up and down the firing line, personally attending to wounded men, and caused all men known to be wounded to be got away. He set a very fine example to his stretcher-bearers.

Capt. GEORGE PERKINS.—For conspicuous gallantry and devotion to duty. After being in the firing line all day, he went out after dark with stretcher-bearers, and stayed out most of the night tending wounded.

Temp. Capt. HOWARD GEORGE PESEL.—For conspicuous gallantry and devotion to duty in evacuating all the wounded under severe and almost continuous shell fire. His three successive collecting posts were destroyed by shell fire and he himself was wounded, but he remained at duty, declining to be relieved.

Capt. AUBREY RADFORD.—For conspicuous gallantry and devotion to duty. He established a dressing station, collected a large number of wounded cases, and by his own personal example and initiative arranged for the evacuation of those wounded, and so saved them falling into the hands of the enemy. The whole time his work was carried out under heavy shell fire.

Temp. Capt. (acting Major) ALEXANDER WILLIAM RATTRIE.—For conspicuous gallantry and devotion to duty. He dressed and evacuated wounded in an advanced dressing station under heavy shell fire for many hours. When the station became practically destroyed, he, though gassed, succeeded in evacuating all the wounded over open country to another dressing station, where he continued to work until that, too, became untenable. He showed great pluck and determination.

Temp. Capt. STANLEY ALFRED RIDDETT.—For conspicuous gallantry and devotion to duty. This officer was the only medical officer in a village that was being very heavily shelled by the enemy, and where our troops were suffering severe losses. He showed complete and self-sacrificing disregard of danger, dressing the wounded and arranging for their removal, moving about the village, which he would not leave until he had satisfied himself by personal investigation that all the wounded had been evacuated. His gallant behaviour and devotion to duty undoubtedly saved many lives.

Temp. Capt. (acting Major) JOHN RODGER.—For conspicuous gallantry and devotion to duty. The position of his advanced dressing station had to be moved on four separate occasions, and on each occasion he evacuated the wounded with great skill. It was largely due to the fine example set by him under heavy machine-gun and rifle fire that the wounded were all got away. He has shown a fine spirit and set a great example throughout.

Capt. (acting Major) JOHN ROWE.—For conspicuous gallantry and devotion to duty. Although it was known that the enemy had penetrated the line, and the area in rear of the advanced dressing station was being organised for defence, this officer never lost touch with the regimental aid-posts. He made many journeys throughout the day, at all times under heavy fire, personally superintending the evacuation of the wounded.

Temp. Capt. BASIL SAMPSON, South African M.C.—For conspicuous gallantry and devotion to duty. During a counter-attack on the enemy positions, this officer, with another, improvised an advanced dressing station and relay posts under the most difficult conditions. They remained at a point considerably forward, under very heavy shell and machine-gun fire, and it was largely due to their efforts and able dispositions that a great many wounded were dressed and evacuated who otherwise might have fallen into the hands of the enemy when later they forced back our line.

Temp. Capt. WILLIAM SMITH, South African M.C.—For conspicuous gallantry and devotion to duty. During a counter-attack on the enemy positions, this officer, with another, improvised an advanced dressing station and relay posts under the most difficult conditions. They remained at a point considerably forward, under very heavy shell and machine-gun fire, and it was largely due to their efforts and able dispositions that a great many wounded were dressed and evacuated who otherwise might have fallen into the hands of the enemy when later they forced back our line.

Temp. Capt. GEORGE WHELDALE STANLEY.—For conspicuous gallantry and devotion to duty in going to the assistance of four wounded men, dressing their wounds, and getting them removed to a place of safety under heavy shell fire. His disregard of danger not only probably saved their lives but was an inspiration to others.

Capt. JAMES STEEL.—For conspicuous gallantry and devotion to duty. This officer was one of the few regimental medical officers who were with their unit during the whole period of withdrawal. He was indefatigable in dressing the wounded, often under fire, and when he had to move invariably assisted himself in evacuating the worst cases. Although twice wounded himself, he refused to leave his work, except to have his wounds dressed.

Temp. Capt. GEORGE EDWARD STEPHENSON.—For conspicuous gallantry and devotion to duty. He organised the most advanced dressing station in the area, attending to casualties of all units under heavy fire, in the most adverse circumstances, and in the open. His devotion to duty was of the greatest value.

Temp. Capt. JOHN STEVENSON.—For conspicuous gallantry and devotion to duty in attending to wounded under heavy shell fire. Subsequently he went out into "No Man's Land" under heavy machine-gun fire and brought in a wounded officer. His coolness and devotion to duty saved many lives.

Temp. Capt. (acting Major) ROBERT SVENSSON.—For conspicuous gallantry and devotion to duty. Under heavy bombardment he led motor ambulance wagons to an advanced dressing station, and brought away all helpless cases. Later he led a convoy of ambulance wagons under shell and machine-gun fire to aid-posts, and continued going backwards and forwards until he had got all wounded away. He saved many wounded from being abandoned to the enemy, and did fine work.

Capt. WILLIAM TAYLOR.—For conspicuous gallantry and devotion to duty in his work amongst the batteries. He remained to the very last in each position, attending to the wounded officers and men, and was untiring in his efforts to assist in every way.

Capt. EWING GEORGE THOMSON, Australian A.M.C.—For conspicuous gallantry and devotion to duty. This officer tended wounded in the open from 4 A.M. to 11 A.M. one morning. During this period he was under very heavy high-explosive and gas bombardment, but, although suffering from the effects of gas, he stuck to his aid-post. His rapidity in evacuating wounded from the gassed area no doubt saved many lives.

Capt. JAMES ETTERSHANK GORDON THOMSON.—For conspicuous gallantry and devotion to duty. When his dressing station was blown up, although suffering from gas, he continued to dress the wounded, and successfully evacuated all the stretcher cases, working until he was quite exhausted. On another occasion when a regimental aid-post was blown up he carried on dressing the wounded and successfully evacuated them. His devotion to duty was an inspiration to all under him.

Capt. WILLIAM ERNEST TYNDALL.—For conspicuous gallantry and devotion to duty. For five days this officer dressed wounded under intense fire, and during the withdrawal he many times stayed behind without assistance to look after them, being in imminent danger of capture. His unceasing efforts resulted in the saving of many officers and men. Though by no means physically strong, he never relaxed his efforts, and his cheerful example greatly heartened the men.

Lieut. DOUGLAS JAMES VALENTINE.—For conspicuous gallantry and devotion to duty. He attended to the wounded in the open under heavy shell fire and superintended their evacuation under most difficult circumstances.

Capt. (acting Lieut.-Col.) GIFFORD TRAILL VAN DER VIJVER.—For conspicuous gallantry and devotion to duty under very heavy hostile shell fire. He continued to work at his dressing station until it was no longer tenable, and before evacuating, under orders, cleared all casualties in the vicinity and brought his unit away with all the equipment.

Temp. Capt. JOHN WALKER.—For conspicuous gallantry and devotion to duty in carrying on his work at an aid-post which was continually being shelled. His organisation and arrangements for the work were admirable, 120 wounded passing through his hands, all congestion was avoided, and the despatch with which they were collected and evacuated probably saved several lives.

Temp. Lieut. ROWLAND WARD.—For conspicuous gallantry and devotion to duty. Whilst under a very heavy barrage this officer attended to the evacuation of numerous casualties. The aid-post situated in a small quarry was subjected to prolonged bombardment and heavily gassed, it was crowded with stretcher cases, and there were 50 more lying in the quarry. He went round all the cases, adjusting gas masks. The aid-post was not even splinter-proof, and received one direct hit, but he continued for three days and nights attending to the cases without sleep, and eventually got away the last of the casualties.

Temp. Capt. EDWARD PARKER WELMAN WEDD.—For conspicuous gallantry and devotion to duty in traversing shell-swept roads and searching trenches under heavy fire till he found and tended the many wounded.

Capt. (acting Major) ERIC WATSON WILLIAMS.—For conspicuous gallantry and devotion to duty. He maintained advanced dressing stations under heavy shell fire until the last possible moment, and personally superintended the evacuation of the wounded. Through his energy and devotion to duty all cases were cleared without delay.

Capt. (acting Major) ARTHUR LOWNDES YATES.—For conspicuous gallantry and devotion to duty. He maintained his medical posts under heavy shelling as long as it was possible, and was responsible for the collection and evacuation of several hundred wounded of other divisions, as well as a great many of his own.

FOREIGN DECORATIONS.

Belgian.

Croix de Guerre.—Staff Surg. H. Cooper, D.S.O., R.N.

Hellenic.

Order of the Redeemer: Officer.—Staff Surg. J. C. Bringan, R.N.

Our attention has been called to an advertisement in THE LANCET of Saturday, Sept. 14th, in which Brevet Lieut.-Colonel F. W. Mott, R.A.M.C. (T.), is described as Officer in Command of the Maudsley Neurological Clearing Hospital. Lieut.-Colonel P. H. Falkner is the Officer in Command, Colonel Mott being Senior Consulting Neurologist. It is the mistake on the part of the Oxford Medical Press appears to have Parliamentary support, as Lieut.-Colonel Mott was described in the House of Commons by Mr. Macpherson as Officer in Command.

OBITUARY OF THE WAR.

CHARLES DEVEREUX MARSHALL, F.R.C.S. ENG.,

STAFF SURGEON, R.N.V.R.

Staff Surgeon Devereux Marshall, who died of cholera at Colaba War Hospital, Bombay, on Sept. 14th, whilst on active service, aged 50, was the son of the late William Marshall, solicitor, of Southsea, and received his medical education at University College Hospital, where he held the junior appointments after qualification. In 1902 he took the Fellowship of the Royal College of Surgeons of England and was appointed surgeon to the Royal London Ophthalmic Hospital, where he acquired a just reputation for great operative skill. He took a deep interest also in various questions on the scientific side of his special work and was particularly interested in colour vision. He wrote a very lucid book on diseases of the eye for the use of general practitioners and students, and contributed papers on ophthalmological subjects to several well-known compendiums. He joined the R.N.V.R. (London Division) in 1903, was promoted lieutenant 1906, transferred to medical branch 1909, promoted staff surgeon 1916. He served in a Flagship in the Mediterranean and in the Far East since 1914, and in 1917 was P.M.O. in the Persian Gulf. He was on active service during the whole of the war.

HEBER HAVELOCK MOSHIER, M.D. TOR.,

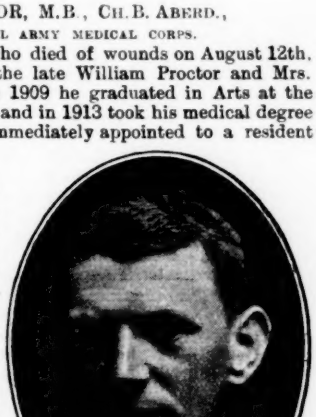
LIEUTENANT-COLONEL, C.A.M.C.; O.C. A CANADIAN FIELD AMBULANCE.

The son of Mr. D. D. Moshier of Toronto, the late Lieutenant-Colonel Moshier was born in Lambton, Ontario, in January, 1889. After graduating with distinction in medicine at the University of Toronto, at the age of 20, he undertook research in pathology at the Rockefeller Institute, New York, and later, crossing to England, worked with Professor Halliburton in the physiological laboratories at King's College, London. Returning to Canada, he had scarcely established himself at Calgary as a consultant pathologist when he was called to the University of Alberta, Edmonton, to the recently established chair of physiology. He threw himself into the work of the University with characteristic thoroughness and energy, and in three years showed himself a source of great strength to the faculty. While at first it seemed to him that his duty lay with the young university, as the war progressed he realised that his country had the greater call upon him, and when, early in 1916, the 11th Field Ambulance was raised in Alberta, he joined it. So good a name had he made for himself as a leader that, despite his youth, he was given his majority and placed second in command. That August he crossed to France with his unit, and went through the actions of Courcelette, Vimy Ridge, and Passchendaele. In September, 1917, he was given command of the unit, and later promoted Lieutenant-Colonel. In this position he rapidly gained the respect and affection of all under him. In May of this year he was mentioned in despatches. He met his death on August 29th during the recent operations, while proceeding forward to locate an advanced dressing station. Under 30 years of age, he had accomplished much, and with him Canada loses a man of great promise.

JOHN PROCTOR, M.B., CH.B. ABERD.,

MAJOR, ROYAL ARMY MEDICAL CORPS.

Major John Proctor, who died of wounds on August 12th, was the eldest son of the late William Proctor and Mrs. Proctor, of Ballater. In 1909 he graduated in Arts at the University of Aberdeen, and in 1913 took his medical degree with distinction, being immediately appointed to a resident post at the Royal Infirmary, Aberdeen, and becoming later house surgeon to the Aberdeen Hospital for Sick Children. He obtained a commission in the Royal Army Medical Corps on the outbreak of war and was sent to France, where he joined a cavalry field ambulance. He was promoted captain after a year of service, and in April, 1918, was mentioned in despatches and promoted to the rank of major. During the whole four years of service he was with the same division of cavalry. He was severely wounded on the night of August 11th, and died at the casualty clearing station the following morning. A brother officer has communicated to his relatives the following: "He was very brave and cheerful through it all, and everyone is full of admiration of his spirits. His loss to the ambulance is irreparable." Major Proctor was 30 years of age.



WILLIAM HOWARD LISTER, M.R.C.S., L.R.C.P. LOND., D.S.O., M.C.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain W. H. Lister was killed in Italy on August 9th, at the age of 32. He had gone forward in the discharge of his duty, and after being slightly wounded by a bullet was shortly afterwards killed by the concussion of a 15-inch mortar bomb. He was educated at Ackworth School, being a member of the Quaker Society, and entered as a medical student at University College, London, in 1904. While there he took a large share in the founding of University College Hall, Ealing, and maintained his interest in it till his death, living there and taking a leading part in its social life. Before qualification he served in the first Balkan War as a dresser, for which he received the Greek medal. Returning to London and qualifying, his love of travel led him to join the R.M.S.P. *Cobequid* as temporary surgeon, and he was wrecked in an ice blizzard in the Bay of Lundy on the voyage, the captian stating that he behaved with distinction. The war broke out after his election to a house appointment at University College Hospital, and he at once joined the R.A.M.C., taking part in the Mons Retreat and the first battle of Ypres. During the latter he was awarded the M.C. for an act of gallantry. His right elbow was injured and permanently ankylosed, but in spite of this, and after serving in the Mediterranean (1915–16), he returned to France and served through the battles of the Somme in 1916, gaining two bars to his M.C. The following year saw him again on the Western front, and in the autumn he was awarded the D.S.O. for gallantry. He was gassed and slightly wounded during this campaign. In the spring of 1918 he served as M.O. to a Guards' battalion, returning to England with an injury to his wounded elbow. In June he went to join a field ambulance in Italy, remaining with it till his death. During this year he was elected a Fellow of University College for "distinction in public life." The following personal testimony from a friend may be added: "Honesty, patriotism, friendship, and love of duty were some of the simple ideals which largely made up his character, and he had a dominant but most lovable personality, which won for him a number of very devoted friends. Cool in action, he always displayed the greatest gallantry and unselfishness. Twice he was recommended for the highest decoration of all. Though several times offered staff appointments which would have carried with them promotion and comparative safety, both of which he had well earned, he preferred to remain in the line, where he seemed to bear a charmed life. In many hearts his death leaves a blank which Time can never fill."

NATIONAL BABY WEEK COUNCIL AND A MINISTRY OF HEALTH.—A conference organised by the National Baby Week Council was held at Bedford College for Women, London, on Sept. 18th, to inaugurate a propaganda campaign in support of the immediate establishment of a Ministry of Health. The desire of the council to create a strong public opinion with a view to giving speedy effect to the promised Ministry of Health Bill, led to certain speakers assuring the meeting that the country would not tolerate the opposition of private or vested interests or departmental jealousies to the immediate realisation of its demands. The following resolution was carried unanimously:—

That in view of the declared intention of the Government to introduce early in the forthcoming Session of Parliament a Ministry of Health Bill, the National Baby Week Council calls upon its members and local committees to pursue an active propaganda campaign in favour of such a Ministry so that the weight of public opinion and the support of the electorate may strengthen the hands of the Government in giving speedy effect to its intentions.

The National Baby Week Council is prepared to find speakers to address meetings on application to the secretary, 27A, Cavendish-square, London, W. 1.

THE SERVICES.

ARMY MEDICAL SERVICE.

Surg.-Gen. (ranking as Lieut.-Gen.) Sir W. L. Gubbins, K.C.B., M.V.O., ret. pay, to be Lieutenant-General on the Retired List.

Surg.-Gens., ret. pay, to be Major Generals on the Retired List: Sir H. R. Whitehead, K.C.B., Sir D. Bruce, K.C.B., F.R.S., Sir T. P. Woodhouse, K.C.B., R. Porter, C.B., R. H. S Sawyer, C.B., C.M.G., J. C. Culling, C.B., W. S. M. Price, Sir T. J. Gallwey, K.C.M.G., C.B., R. H. Quill, C.B., Sir G. D. Bourke, K.C.M.G., J. C Macneece, C.B., T. M. Corker, C.B., Sir R. W. Ford, K.C.M.G., C.B., D.S.O., G. J. H. Evatt, C.B., W. J. Fawcett, C.B., J. D. Edge, C.B., W. W. Kenny, C.B., P. M. Ellis, O. E. P. Lloyd, V.C., C.B.

Temp. Major-Gen. Sir G H. Makins, K.C.M.G., C.B. (Lieut.-Col., R.A.M.C. (T.F.)), relinquishes his temporary commission on re-posting, and is granted the honorary rank of Major-General

Cols. (Hon. Surg.-Gens.), ret. pay, to be honorary Major-Generals on the Retired List: Sir J. Maher, K.C.M.G., C.B., Sir M. W. Russell, K.C.M.G., C.B., R. S. F. Hehderson, C.B., W. F. Stevenson, C.B., M.B., K.H.S.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on re-posting: Majors G. E. Ferguson, A. C H. Gray, J. W. L. Scott, Capt. J. A. Andrews.

To be acting Lieutenant-Colonels (whilst in command of a Medical Unit): Majors L. V. Thurston, J. T. McKintire, W. J. Weston, Capt. R. E. Todd, Temp. Capt. (acting Major) H. Young, Temp. Major H. MacCormac (whilst specially employed).

The following relinquish the acting rank of Major on re-posting: Capts. J. J. H. Beckton, H. W. Carson, Temp. Capts. J. Rodger, J. P. Good, N. G. W. Davidson.

E. C. Hort to be temporary Major whilst specially employed.

Temp. Capt. Charles E. F. Mouat-Biggs to be temporary Major (without increased emoluments).

Temp. Capts. to be acting Majors whilst specially employed: Donald W. Roy, W. R. Wilson.

To be acting Majors: Capts. G. De la Cour, A. M. McCutcheon, R. F. O'T. Dickinson, J. James; Temp. Capts. M. J. Mottram, M. C. Gardner, C. D. Coyle, R. C. Cooke, G. Clarke, H. K. Wallace, F. B. McCarter, M. W. Littlewood, A. W. Uloth, W. W. Smith, T. O. Thompson, E. E. H. Leach

Temp. Hon. Lieut. B. E. Hawke to be temporary Honorary Captain.

Officers relinquishing their commissions: Temp. Capts. E. H. Hamilton (on appointment under the Ministry of National Service), W. S. Pickup, J. S. Gilchrist (on account of ill-health contracted on active service, granted honorary rank of Captain), W. Hutcheson (on account of ill-health, granted the honorary rank of Captain), F. R. Snell (on account of ill-health contracted on active service, granted honorary rank of Captain), R. O. H. Jones (on account of ill-health contracted on active service, granted the honorary rank of Captain), F. A. Cooke, C. M. Bernays (on account of ill-health contracted on active service, granted the honorary rank of Captain), G. S. Robinson (on account of ill-health, granted the honorary rank of Lieutenant), J. R. White, W. Balgarnie (granted the honorary rank of Captain), (Acting Major) C. L. T. Arthur, L. E. Bolster, C. D. H. Corbett, J. M. N. S. Bickerton (on account of ill-health, granted the honorary rank of Captain), J. Craig, late temporary Captain (granted the honorary rank of Captain), E. F. Thomas, A. H. Walker; Temp. Lieuts. H. S. Mason, S. B. Depree, B. S. Cornell (on account of ill-health, granted the honorary rank of Lieutenant), C. W. S Boggs, D. A. Tompsett, S. W. Smith (on account of ill-health), H. Cox; Temp. Hon. Lieut. C. F. Larson.

SPECIAL RESERVE OF OFFICERS.

Lieut.-Col. A. A. Watson to be acting Colonel whilst employed as Assistant Director of Medical Services of a Division.

Captains to be acting Majors: G. E. Pepper, R. Green.

Captain W. J. M. White relinquishes his commission on account of ill-health contracted on active service, and is granted the honorary rank of Captain.

Lieutenants to be Captains: D. C. Buchanan, J. Marshall, P. A. O'Brien, J. J. Robertson, E. P. Crawford, W. P. Kivlichan, J. G. McK. Macaulay, A. B. Cocker, J. B. Irving.

To be Lieutenants: K. D. D. Dickson, A. J. Meek, G. W. C. Dunlop, and H. J. Parish (from Edinburgh University Contingent O.T.C.), G. R. Ross (from St. Andrews University Contingent O.T.C.), J. Morrison (from Aberdeen University Contingent O.T.C.), R. J. Patchett.

Lieut. H. Taylor relinquishes his commission on account of ill-health, and is granted the honorary rank of Lieutenant.

TERRITORIAL FORCE.

Lieut.-Col. T. Fraser to be an Assistant Director of Medical Services and to be temporary Colonel whilst so employed.

Major J. Cumming relinquishes his commission on account of ill-health, and is granted permission to retain his rank and to wear the prescribed uniform.

Major A. R. Henchley to be acting Lieutenant-Colonel whilst specially employed.

Capt. (acting Major) B. Hughes relinquishes his acting rank.

Major F. J. Smith is retired, and is granted the honorary rank of Major.

Major (acting Lieut.-Col.) W. B. Armstrong relinquishes his acting rank on ceasing to be specially employed.

Captains to be acting Majors whilst specially employed: W. H. Morrison, C. Burrows, G. S. Melvin, F. S. Jackson, C. S. P. Black, P. S. Price, F. Scroggie, A. L. Heiser, A. W. Stott.

Captains (acting Majors) relinquishing their acting rank on ceasing to be specially employed: T. B. McKee, H. Stonehouse, D. Campbell, C. E. Petley, G. B. Pritchard, H. Duguid.

Capt. J. W. Patrick is seconded for duty with a General Hospital.

TERRITORIAL FORCE RESERVE.

Major W. A. Wetwan, from R.A.M.C., to be Major.

Capts. J. O'Sullivan and C. W. Ellison, from R.A.M.C., to be Captains.

ROYAL AIR FORCE.

Medical Branch.—H. A. Treadgold is granted a temporary commission as Captain, and to be temporary Major whilst so employed, but without the pay and allowances of that rank. S. W. Fisher is granted a temporary commission as Captain.

Dental Branch.—A. C. S. Cottam is granted a temporary commission as Lieutenant.

OVERSEA FORCES.

South African Medical Corps.—E. H. Cluver to be temporary Captain.

Medical News.

ROYAL INSTITUTE OF PUBLIC HEALTH.—A course of lectures on public health problems as they present themselves under the war, and as they may present themselves at the cessation of war, will be delivered on Wednesday afternoons at the Institute during October, November, and December, commencing on Oct. 9th, when Professor Arthur Keith will discuss Anthropometry in Relation to National Health. Among other important lectures may be mentioned those by Lieutenant-Colonel L. W. Harrison on Abortive Treatment of Venereal Disease, of Miss Jane Walker, M.D., on the Tuberculous Soldier, of Professor E. W. Hope on the Rôle of Ports in the Protection of the Health of the Nation, and of Alderman C. Spencer on the Influence of National Kitchens.

A general Order of the Local Government Board, entitled the Public Health (Tuberculosis) Regulations (No. 2), 1918, has just been issued, altering the Public Health (Tuberculosis) Regulations of 1912. The Regulations as altered apply to the notification to the proper medical officer of health by the chairman of any National Service Medical Board, or by some member of the Medical Board designated by the chairman, of every case of tuberculosis diagnosed by the Medical Board, in the same way as they apply to the notification by a medical practitioner in pursuance of Article V. of the Regulations of 1912. The fee to be paid for each notification made in pursuance of this Article will be 1s., and no fee will be payable to any person who holds a commission in any of His Majesty's Forces and is receiving pay in respect thereof. This Order is to be in force during the continuation of the present war.

URBAN VITAL STATISTICS.

(Week ended Sept. 21st, 1918.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality was 11·7, against 11·9 and 11·3 per 1000 in the two preceding weeks. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 11·9, or 1·4 per 1000 above that recorded in the previous week; among the remaining towns the rates ranged from 4·0 in Cambridge, 4·2 in Ilford, and 4·9 in Ealing to 17·9 in Grimsby, 18·1 in Tottenham, and 21·8 in Great Yarmouth. The principal epidemic diseases caused 389 deaths, which corresponded to an annual rate of 1·2 per 1000, and included 299 from infantile diarrhœa, 39 from diphtheria, 19 from whooping-cough, 15 from measles, 10 from scarlet fever, and 7 from enteric fever. The deaths from diarrhœa, which had declined from 435 to 346 in the three preceding weeks, further fell to 299, and included 74 in London, 20 in Liverpool, 16 in West Ham, and 13 in Sheffield. The 839 cases of scarlet fever and 1025 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 61 and 72 above the respective numbers remaining at the end of the previous week. Of the total deaths in the 96 towns 119 resulted from violence. The causes of 32 deaths were uncertified, of which 6 were registered in Birmingham and in Liverpool, and 4 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 11·6, against 10·9 and 10·6 per 1000 in the two preceding weeks. The 274 deaths in Glasgow corresponded to an annual rate of 12·8 per 1000, and included 12 from infantile diarrhœa, 2 from whooping-cough, and 1 each from measles, scarlet fever, and diphtheria. The 75 deaths in Edinburgh were equal to a rate of 11·7 per 1000, and included a fatal case each of whooping-cough and infantile diarrhœa.

Irish Towns.—The 129 deaths in Dublin corresponded to an annual rate of 16·9, or 2·2 per 1000 below that recorded in the previous week, and included 14 from infantile diarrhœa, 2 from whooping-cough, and 1 from diphtheria. The 109 deaths in Belfast were equal to a rate of 14·5 per 1000, and included four fatal cases of infantile diarrhœa and 1 of enteric fever.

BOOKS, ETC., RECEIVED.

DORNAN, W. J., Philadelphia.
Transactions of the Southern Surgical Association. Vol. XXIX.
Medical and Surgical Reports of the Episcopal Hospital, Philadelphia. Vol. IV.
Transactions of the Gynecological Society of Philadelphia. Vol. XLII. 1917.

OXFORD UNIVERSITY PRESS, London, America, Australia, and India. (Carnegie Endowment for International Peace.)
The Controversy over Neutral Rights between U.S. and France, 1797–1800. Edited by J. B. Scott. 15s.
Declaration of Independence, &c. Edited by J. B. Scott. 4s. 6d.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, New York.
Reprints. Vol. XXVII.

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—Second Female H.S. £225.
Bath, Royal Mineral Water Hospital.—Res. M.O.
Bedford County Hospital.—Res. M.O. £150.
Birmingham General Dispensary.—Res. M.O. £360.
Blackpool, Victoria Hospital.—H.S. £250.
Bolton Union, Townley's Auxiliary Military Hospital, Farnworth, near Bolton.—Female Asst. M.O. £300.
Bristol Royal Infirmary.—H.P. and H.S. £120.
Carlisle, Cumberland Infirmary.—Female H.P.
Central London Ophthalmic Hospital, Judd-street, W.C.—H.S. £50.
Derby, Derbyshire Royal Infirmary.—H.S. £200.
Dorset County Council Education Committee.—School Dentist. £300.
Dudley, Guest Hospital and Eye Infirmary.—Asst. H.S. £120.
Exminster, Devon Mental Hospital.—Locum Tenens. 7 guineas a week.
Gravesend Hospital.—H.S. £250–£300.
Great Northern Central Hospital, Holloway-road, N.—H.S. £100.
Hospital for Consumption and Diseases of the Chest, Brompton.—Asst. Res. M.O. £100.
Hospital of St. John and St. Elizabeth, N.W.—Res. M.O. £250.
Isle of Man Mental Hospital.—Asst. M.O. £250.
Leeds City Public Health Department.—Female Med. Asst. £400.
Leeds General Infirmary.—Hon. Obstet. S. or P., and Hon. Aural S.
Lindsey, Lincolnshire.—Asst. M.O. £400.
Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.—Surgeon. £200.
Netley, Welsh Hospital.—Pathologist. £400. Also Two M.O's. £400.
Northampton, V.A.D. Headquarters, Pike-lane, Marefair.—Res. M.O. £1 per day.
Northumberland, County of.—School Med. Insp. £350.
Nottingham General Hospital.—Female H.P. £250.
Plymouth, South Devon and East Cornwall Hospital.—M.O. for Venereal Diseases Department. £500.
Richmond Royal Hospital, Surrey.—Refractionist. £50.
St. Giles Infirmary, Brunswick-square, Camberwell, S.E.—Locum Tenens Asst. M.O. £7 7s. weekly.
Sheffield Royal Infirmary.—Res. S.O. £200.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. and H.S. £100.
Stoke-on-Trent County Borough.—Asst. Tuberc. O. £400.
Western Ophthalmic Hospital, N.W.—Non-Resident H.S. £100.
Wigan Infirmary.—Jun. H.S. £225. Also Surgical Dresser. £150.
York City.—Temp. Tuberc. O. £350.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Clitheroe.

Births, Marriages, and Deaths.

BIRTHS.

BADGEROW.—On Sept. 13th, at 2, Hill-street, Knightsbridge, the wife of Lieutenant-Colonel George W. Badgerow, C.M.G., F.R.C.S., 4, Harley-street, W.—a son.

BARTLETT.—On Sept. 15th, the wife of George Bertram Bartlett, Temporary Captain, R.A.M.C., of 21, Sutton Court, Chiswick—a son (George Adrian).

HAYLOCK.—On Sept. 22nd, at Balsham, Clifton-road, Southbourne, Bournemouth, the wife of Sydney J. Haylock, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

NUTT.—On Sept. 16th, at the Highcliffe Nursing Home, Hants, the wife of Major H. R. Nutt, I.M.S., of a daughter.

ROBINSON.—On Sept. 18th, at St. Fillans, Saltash, the wife of Hugh G. Robinson, M.B., of a son.

MARRIAGES.

BRADBURY—WILLIAMS.—On Sept. 19th, at St. Swithin's, London Stone. Staff Surgeon William Bradbury, D.S.O., R.N., to Norah Michael, youngest daughter of Mr. and Mrs. G. Michael Williams, Muswell-hill, N.

GARDNER—NEWSAM.—On Sept. 18th, at St. Augustine's Church, Broxbourne, Arthur Duncan Gardner, M.D., F.R.C.S., to Violet Mary, youngest daughter of the late I. Fowler Newsam and Mrs. Fowler Newsam, of Broxbourne.

MARR—BOOKLESS.—On Sept. 20th, at the Station Hotel, Inverness, Captain David Murdoch Marr, M.B., Ch.B., R.A.M.C.S.R., to Marion Hannah Payne, youngest daughter of the late James Bookless and Mrs. Bookless, The Riggs, Inverness.

SMITH—THORNE.—On Sept. 17th, at St. Mary's, Wimbledon, John Ferguson Smith, Captain, R.A.M.C., to Ethel May Thorne.

DEATHS.

FISCHEL.—On Sept. 14th, from wounds, Captain Claude Henry Fischel, R.A.M.C., Leicesters, aged 28.

GRIFFITH.—On Sept. 24th, at The Homestead, Lingfield, Alfred Hume Griffith, M.D. Edin., D.P.H. Cantab., F.R.S.M., second son of the late Rev. Edward Moule Griffith.

HIND.—On Sept. 16th, at St. Thomas's Home, Westminster, after severe operation, Clara Hind, L.R.C.P. & S. Edin., of Ockley Sanatorium, Surrey.

JOHNSTON.—On Sept. 22nd, at a nursing home, Glasgow, Alexander Johnston, Major, R.A.M.C., M.D., D.P.H. Cantab.

MARSHALL.—On Sept. 14th, at Colaba War Hospital, Bombay, Staff Surgeon C. D. Marshall, R.N.V.R., P.M.O. in the Persian Gulf and Mesopotamia, aged 50.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"OUR DAY."

IN consequence of the large growth of the British Armies the needs of the joint British Red Cross Society and the Order of St. John of Jerusalem in England are much greater than in any previous year. It is hoped, if sufficient help is obtained, that a new record will be created for "Our Day" Fund which is fixed for Oct. 24th next. Helpers are needed in organisation, as emblem sellers, at depôts and stalls, to call on shops and places of business, to distribute red crosses and books of stamps, as captains and teams of workers, to collect from Oct. 14th to 24th, and to pack and for general office work. Masters and mistresses of schools and children are especially invited to come in the circle for getting "miles of pennies," while any small gifts are acceptable to sell at various stalls. Anyone willing to help should communicate with Miss C. May Beeman, organising secretary, 10, West Bolton-gardens, S.W. 5.

THE DUAL PROFESSIONS.

ONE of the outstanding features of the Harvest Thanksgiving services at Giggleswick-in-Craven Church, Yorkshire, last Sunday, when the offertories were devoted to the Leeds Infirmary, was an address given, after evensong, by Dr. H. de Carle Woodcock, of Leeds, in which he pleaded for a closer alliance between the dual professions of therapeutics —viz., those of medicine and theology. He touched on the future of medical science, and stated his belief that eventually all disease would come under the Prospero spell of the physician. Whilst the State was apt to be chilling and mathematical the practice of medicine was ardent and emotional, depending on the presence of sympathy, therefore voluntary aid in our hospitals, along with individualism in private practice, would surely continue for many a long year. This was in keeping with the genius of the English character. The endowment of research was also strongly urged.

40 D.

FURTHER cases under Section 40 D. D.O.R.A. regulations have been brought before the justices at Brighton and Lewes and varying terms of imprisonment have been imposed. In a case heard at Lewes on Sept. 17th, however, the woman was discharged after evidence had been given both by a woman doctor and a bacteriologist that the results of their examinations were negative. The defending solicitor protested that it was unfair that no proceedings could be taken against the informant, and the justices agreed with the view.

THREATENED STRIKE IN AN ASYLUM.

THE attendants of the Richmond District Lunatic Asylum in Dublin last week backed up their demand for increased wages to the committee by a threat to strike if their claims were not admitted. The attendants only took this strong step in consequence of a previous request of theirs for increase of wages having been ruled out of order. It is unfortunate that any demand from an asylum staff, whether justified or not, should have been treated discourteously.

END OF SUMMER TIME.

Summer time will come to an end at 3 A.M. (summer time) on Monday next, when clocks will be put back to 2 A.M., which will be the ordinary Greenwich time.

D. M. S.—The address of the National Herb Growing Industry, Ltd., is 15, Verulam-street, E.C.; of the National Herb Federation, 29, Cockspur-street, S.W.; and of the Scottish Horticultural Association, 19, Waverley Market, Edinburgh. The Herbal Subcommittee of the Women's Farm and Garden Union, 45, Queen Anne's Chambers, London, S.W., would probably be able to give valuable information. The following books might be consulted: Ada B. Teetgen's "Profitable Herb Growing and Collecting" (office of *Country Life*, 20, Tavistock-street, W.C., price 3*s.* 6*d.*); Holmes's "Cultivation and Drying of Medicinal Plants" (E. M. Holmes, Ph.C., Ruthven, Sevenoaks, Kent, price 1*s.*); "Medicinal Herbs" (David Ellis) (Blackie and Son, Ltd., 50, Old Bailey, E.C.); Potter's "Cyclopædia of Botanical Drugs and Preparations" (edited by R. C. Wren, with additions by E. M. Holmes) (Potter and Clarke, 60, Artillery-lane, E. 1); and the pamphlets written by Mrs. Grieve, Chalfont St. Peter, Bucks; also the leaflets of the Board of Agriculture and articles in the Journal of the Board of Agriculture, to be obtained on application to the Board at 3, St. James's-square, S.W.

Medical Diary for the ensuing Week.

SOCIETIES.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY, Oct. 4th.—8.30 P.M., Presentation of the Keetley Memorial Medal to the Retiring President. Presidential Address:—Ancient Physic.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, Sept. 30th.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Arthur Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Arthur Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Out-patients each day at 2.30 P.M.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY, Sept, 30th.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

EDITORIAL NOTICES.

In consequence of the pressure on our space and the shortage of paper, the Editor may be compelled to abbreviate communications, as an alternative to their rejection, when time does not allow them to be reconsidered by their authors.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. C. B. Andrews, Lond.; Major G. F. Alexander, R.A.M.C.; Mr. C. Andrew, Leyton; Association Nationale des Orphelins de la Guerre, Paris.

B.—Major W. Brown, R.A.M.C.; Rev. T. P. Brocklehurst, Giggleswick-in-Craven; Dr. C. Burland, Blundellsands; Mr. H. Blakeway, Lond.; Lieut.-Col. G. S. Buchanan, C.B., R.A.M.C.

C.—Sir Anderson Critchett, Bart., C.V.O., Lond.; Capt. D. E. Core, R.A.M.C.(T.); Mr. J. Cabburn, Lond.; Dr. H. P. Cholmeley, Forest Row; Child-Study Society, Lond., Sec. of; Capt. J. Campbell, R.A.M.C.; Mr. A. L. Clarke, Hastings.

D.—Decimal Association, Lond.; Dr. A. Distaso; Miss E. R. Davis, Lond.; Capt. H. W. Dyke, R.A.M.C.; Major H. B. Day, R.A.M.C.

E.—Dr. A. B. Elliott, Abergele.

F.—Dr. E. G. Fearnsides, Lond.; Staff-Surg. P. Fildes, R.N.V.R.; Factories, Chief Inspector of, Lond.; Mr. G. Fisher, Barnstaple; Mr. C. E. S. Flemming, Bradford-on-Avon; Surg. G. M. Findlay, R.N.

G.—Rev. J. A. Gray; Lieut.-Col. E. Goodall, R.A.M.C.; Mr. H. B. Gardner, Lond.; Capt. H. S. Gibson, R.A.M.C.(T.), Dr. W. H. Gregory, Beverley; Dr. T. S. Greenaway, Lond.; Fleet-Surg. A. Gaskell, R.N.; Dr. J. Gairdner, Crieff.

H.—Major W. F. Home, R.A.M.C.; Rev. C. W. Heald, Chale; Capt. W. S. Handley, R.A.M.C.(T.)

J.—Mr. J. C. Jefferson, Rochdale; Mr. M. H. Judge, Lond.; *Journal of General Physiology*, New York.

K.—Dr. P. Kidd, Lond.; Mr. H. A. Kennedy, Ottawa; Mr. C. T. Kingzett, Lond.

L.—Dr. W. Lansdale, Lond.; Dr. P. Lassablière, Paris; Local Government Board, Lond.; Surg. J. Lambert, R.N.; London (Royal Free Hospital) School of Medicine for Women.

M.—Miss A. G. MacMullen, Cork; Dr. J. B. Mennell, Lond.; Messrs. Methuen and Co., Lond.; Middlesex Hospital, Sec. to Council; Bt. Lieut.-Col. F. W. Mott, R.A.M.C.(T.); Municipal Waterworks Association, Lond., Sec. of; Ministry of Munitions, Lond.

N.—National Food Reform Association. Hon. Sec. of; *National Food Journal*, Lond.

P.—Messrs. Pain and Co., Lond.; Mr. V. Plarr, Lond.; Messrs. Palmer, Bull, and Bartlett, Lond.; Panel Committee for the County of London.

R.—Capt. T. A. Ross, R.A.M.C.; Royal Institute of Public Health, Lond.; Royal Free Hospital, Lond., Sec. of; Rockefeller Institute for Medical Research, New York; Dr. J. D. Rolleston, Lond.

S.—Messrs. W. B. Saunders Co., Philadelphia; Society for the Study of Inebriety, Lond.; Capt. H. A. Scholberg, R.A.M.C.(T.); Mr. D. M. Storach, Edinburgh; Prof. J. W. W. Stephens, Liverpool; Lieut.-Col. J. O. Smith, Lond.; Dr. L. E. Shaw, Lond.

T.—Major R. H. Trotter, R.A.M.C.

W.—West London Hospital Post-Graduate College, Dean of; Messrs. Gilbert Wood and Co., Lond.; Dr. W. Waddell; Dr. R. C. Wingfield, Lond.; West London Medico-Chirurgical Society.

Offices: 423, STRAND, LONDON, W.C. 2.